

SUOMALAISEN ELÄIN- JA
KASVITIETEELLISEN SEURAN

VANAMON
KASVITIETEELLISIÄ JULKAISUJA

OSA 9

ANNALES BOTANICI
SOCIETATIS ZOOLOGICÆ-BOTANICÆ
FENNICÆ

VANAMO

TOM. 9

1938:147.

HELSINKI 1937

N:o 1. AHLNER, STEN, Flechten aus Nordfinnland. (4 Abbildungen im Text.) 1937	I-II;	1- 47
Suomenkielinen selostus: Pohjois-Suomen jäkäliä..		48
N:o 2. ROIVAINEN, H., Bryological Investigations in Tierra del Fuego. 1. Sphagnaceae-Dicranaceae. (17 figures.) 1937	I-X;	1- 56
Suomenkielinen selostus: Tutkimuksia Tulimaan lehtisammalista. 1. Sphagnaceae-Dicranaceae ..		57- 58
N:o 3. JÄRVENKYLÄ, Y. T., Über den Einfluss des Lichtes auf die Permeabilität pflanzlicher Protoplasten. (13 Abbildungen und 35 Tabellen im Text.) 1937	I-IV;	1- 97
Suomenkielinen selostus: Valon vaikutuksesta kasvisolujen alkuliman läpäisevyyteen		98- 99
N:o 4. KALLIOLA, REINO, Dryopteris fragrans (L.) Schott, ein für Europa neuer Farn. (2 Abbildungen und 1 Karte im Text sowie 1 Kartenbeilage.) 1937	I-VI;	1- 52
Suomenkielinen selostus: Dryopteris fragrans (L.) Schott, Euroopalle uusi saniainen		53- 56
N:o 5. AUER, A. V., Tietoja Sphagnum-lajien levinneisyydestä ja kasvupaikkojen luonteesta Varsinais-Suomessa. 1937	I-II;	1- 20
Deutsches Referat: Zur Kenntnis der Verbreitung sowie des Standortscharakters der Sphagnum-Arten in Südwestfinnland (Ab)		21
N:o 6. TYNNI, TELLERVO, Pukkilan, Askolan ja Porvoon pitäjän pohjoisosan kasvisto. (4 tekstikuva, 11-karttaa ja 9-taulukkoa.) 1937.....	I-VI;	1- 98
Deutsches Referat: Die Flora der Kirchspiele Pukkila und Askola sowie des nördlichen Teiles des Kirchspiels Porvoo in Südfinnland		99-102
N:o 7. Kasvitieteellisiä tiedonantoja ja kirjoitelmia. 9. - Notulae Botanicae. 9. 1937	I-II;	1- 44
ERKAMO, V., Centunculus minimus L. in Koivisto (Ka) gefunden		1
KIVILINNA, VÄINÖ, Ranunculus cymbalaria Pursh in Finland gefunden		9
KONTUNIEMI, TAHVO, Kleine Beiträge zur Kenntnis der Gefäßpflanzenflora Südwest-Estlands		9
LEPIK, E., Über das Vorkommen von Puccinia Halosciadis Sydow in Lappland		13
LINKOLA, K., Warum meidet die Schwarzerle die Ufer des Ladogasees?		14
-»- Wiedergabe der Frequenzverhältnisse auf Verbreitungskarten		21
SAARNIJOKI, SAKARI, Einiges über die »Pirkkala-Birken» von heute		27
TUOMIKOSKI, R., Vorläufige Mitteilung über die Revision des Calliergon giganteum-Materials sowie einiger Plagiothecium-Arten im Herbarium Musei Fennici		39



Digitized by the Internet Archive
in 2025

SUOMALAISEN ELÄIN- JA KASVITIETEELLISEN SEURAN VANAMON
KASVITIETEELLISIÄ JULKAISUJA
Osa 9. N:o 2.
ANNALES BOTANICI SOCIETATIS ZOOLOGICÆ-BOTANICÆ FENNICÆ VANAMO
Tom. 9. N:o 2.

BRYOLOGICAL INVESTIGATIONS
IN
TIERRA DEL FUEGO

BY

H. ROIVAINEN

(Tikkurila, Suomi)

WITH

DIAGNOSES OF MANY NEW SPECIES

BY

EDWIN B. BARTRAM

(Bushkill, Pa., USA)

1. *SPHAGNACEAE-DICRANACEAE*

16 figures

Suomenkielinen selostus:

Tutkimuksia Tulimaan lehtisammalista

1. *Sphagnaceae-Dicranaceae*

HELSINKI 1937

HELSINKI 1937

PRINTED BY SUOMALAISEN KIRJALLISUUDEN SEURAN KIRJAPAINON OY.

DEDICATED
TO THE MEMORY OF

JULES CARDOT

AND

V. F. BROTHÉRUS.

TWO OF THE MOST DISTINGUISHED INVESTIGATORS
OF THE BRYOLOGY OF TIERRA DEL FUEGO

PREFACE.

Bryological investigations and collections formed a considerable part of my duties during my travels in Tierra del Fuego in 1928–1929. In my capacity of botanist to the scientific expedition of the Finnish Geographical Society under the leadership of Professor VÄINÖ AUER I was able to make extensive journeys, especially in the main island of Tierra del Fuego. The travels of the expedition have already been described by AUER (1934), so that there is no need to refer to them here. I have the most grateful recollection of the help given me by Professor AUER and all my travelling companions, as well as by many of my Chilean and Argentinian friends.

It has been a special pleasure to collaborate with Mr EDWIN B. BARTRAM. He has described most of my discoveries of species new to science and made drawings of them. I shall ever be sincerely grateful for all his work and kindness. I should also like to express my thanks to the Botanical Institute of the University of Helsinki in which I have been allowed to work, and to the Botanical Museum of the University of Uppsala and the Paleontological Department of the Riksmuseum in Stockholm from which I was allowed to borrow collections for the purposes of my investigations. My sincere gratitude is likewise due to the Finnish Zoological and Botanical Society Vanamo both for the large subsidy it has given me and for printing my work.

Among the results of my bryological investigations I deal with the following families on the present occasion: *Sphagnaceae*, *Andreaeaceae*, *Fissidentaceae*, *Ditrichaceae*, *Seligeriaceae* and *Dicranaceae*. This will soon be followed by the *Encalyptaceae*, *Polliaceae*, *Grimmiaceae*, *Funariaceae*, *Splachnaceae* and *Bryaceae* families. The materials regarding the latter are already to a great extent ready for publication. In my work I have followed the system employed by

VI *H. Roivainen*, Bryol. investigations in Tierra del Fuego.

V. F. BROTHÉRUS (1924 a and b). The main part of my Fuegian leaf mosses will be preserved in the Botanical Museum of the University of Helsinki.

My collections of hepatic mosses are in the keeping of H. BUCH, PH.D. (Helsinki). He intends to publish particulars of them in due course.

The English text of this work has been translated and read by Mr EDWARD BIRSE (Helsinki).

Tikkurila, Finland, December 1936.

H. ROIVAINEN.

EXPLANATORY NOTES.

In order to economise space I have employed a number of abbreviations in the text, of which the following should be mentioned:

a.	= anno	N.	= <i>Nothofagus</i>
alp.	= alpina	occ.	= occidentalis
bor.	= borealis	or.	= orientalis
c.	= cum	nov.	= novus
est.	= estancia	Pto	= Puerto
fj.	= fjordo	reg.	= regio
g II	= generatio secunda (= sporophytum)	subalp.	= subalpina
Mag.	= Magallanes	u.c.	= unacum
		vet.	= vetustus

To avoid mistakes in regard to the names of places a map is given on the page IX, showing the position of all the sites of my discoveries. The numbers refer to the following places:

1. Magallanes and Río de las Minas
2. Peninsula Brunswick, Puerto San Isidro
3. Isla Clarence, Estero Staples and Lago Laina
4. —»— —»— , Puerto Beaubasin
5. Puerto (Bahia) Queta
6. Bahia Sarmiento (— Puerto Martinez)
7. Fjordo (Almirante) Martinez
8. —»— —»— , Bahia Plüschow
9. Fjordo de Agostini, Bahia Groth-Hansen
10. Puerto Encanto and Monte Buckland
11. Isla Dawson, Bahia de las Islas
12. —»— —»— , Puerto Valdez
13. Fjordo Finlandia, Bahia Kairamo
14. —»— —»— , Fjordo Relander
15. —»— —»— , Brazo Aino et Ventisquero Runeberg
16. —»— —»— , Monte Nylandia

VIII *H. Roivainen*, Bryol. investigations in Tierra del Fuego.

18. Puerto Arturo
19. —»— —»—, Campo Alto
20. —»— —»—, Olgyta and Río Condor
21. Puerto Yartou
22. » —»—, Lecheria Miramar
23. Pico Nariz
24. Río Bueno
25. Río Nogueira and Punta Cameron
26. Estancia (Sección) Cameron
27. —»— Esperanza
28. Altos de Boquerón and Hotel Boquerón
29. Porvenir
30. Bahía Gente Grande
31. Isla Elisabeth
32. Estancia Cameron, Puesto Medio
33. —»— —»—, Sección Russfin
34. Lago Linch
35. Cerro Chico
36. Lago Blanco
37. Sección Río Grande
38. Estancia Vicuña
39. —»— —»—, Puesto 20 and Cerro Fuentes
40. Lago Deseado
41. Estancia Vicuña, Campo 13 B
42. —»— La Marina
43. —»— Los Cerros
44. » Carmen
45. —»— —»—, Puesto Millaldeo and Río Claro
46. Lago Fagnano, Punta Pizarro
47. Cerro Millaldeo
48. Cabo Penas
49. Estancia Rubi
50. —»— Herminita
51. Pueblo Río Grande
52. Estancia Sara
53. Sierra Carmen Silva

I have marked the botanical regions of Tierra del Fuego employed by me by means of lines of crosses (++++++) on the map. I will explain this division, which is partly provisional, in detail in another connection.

The frequency and abundancy of the plants is noticed and in the text abbreviated as follow:



Fig. 1. Map showing the sites of the discoveries by the author and the botanical regions (partly provisional) in Tierra del Fuego.

frequentissima (fqq)	copiosissime (cpp)
frequens (fq)	copiose (cp)
sat frequens (st fq)	sat copiose (st cp)
passim (p)	sparsim (sp)
sat rara (st r)	sat parce (st pc)
rara (r)	parce (pc)
rarissima (rr)	parcissime (pcc)

Many of the minor forms of mosses that I was able to examine on their habitats, are obvious modifications (mf.). I therefore employ a special designation for the different forms according to the value I attach to them systematically. With regard to the forms of mosses it is, however, impossible in my opinion to employ several categories of hereditary forms. I have therefore designated all kinds of smaller hereditary forms as forms (f. = forma). However, such forms, formerly described as variations (var.) of which I have not made sufficient observations, I have preserved unchanged.

THE MOSSES AND THEIR GROWING SITES.

SPHAGNACEAE

Sphagnum fimbriatum Wils. — Fig 2.

In tota Fuegia occ. et media fq-fqq, modificationes numerosas proferens, in paludibus apertis *Sphagni magellanic*i vel, in Fuegia occ., inter associationes *Donatiae fascicularis*, *Calthae appendiculatae*, *Dicranolomatis Harioti*, *D. subimponentis*, *Chorisodontii aciphylli*, etc., nec non in silvis paludosis proveniens. In reg. subalp. quoque, 400–500 m s.m., crescit. Capsulas verisimiliter rarius in Fuegia fert; cum iis in sequentibus locis vidi: Fuegia occ.: Fj. Finlandia, Bahia Kairamo. Fuegia media: Río Bueno; Lago Linch; Lago Fagnano. Fuegia or.: Cabo San Pablo.

Sphagnum fimbriatum is the most common species of *Sphagnum* in Tierra del Fuego. It occurs there, as will be seen from the above, on very different growing sites. The habitus of this moss varies very much according to the habitat. It might almost be said that it is only as an exception that it is found of quite the same aspect in two different places. Owing to the great variation in the habitus of the species I took specimens of it from almost every place I visited. The investigation of these numerous specimens has made me doubt very much, whether CARDOT's var. *validius* and var. *molluscoides*, RUSSOW's var. *spectabile* and BRAITHWAITE's var. *robustum* are not merely modifications. Even if we examine the equally uniform *Sph. fimbriatum* colonies, e.g., at the margin of the water in which the lower edge of the colony lives in more humid conditions than the upper edge, we often observe great differences in habitus between sprouts that have developed in humid and in drier conditions.

The form of *Sph. fimbriatum* that is most common in Scandinavia—along wet, shaded rivulets — and that WARNSTORF (1911, p. 53),

too, considers to be the »normal form» of the species, is rare in Tierra del Fuego. I found quite such a form in Tierra del Fuego only in Bahía Kairamo (Fj. Finlandia). It grew along a rivulet in a damp, shady *Nothofagus antarctica* forest rich in *Marsippospermum grandiflorum*.



Fig. 2. Modifications of *Sphagnum fimbriatum* photographed from specimens brought from Tierra del Fuego. — a. mf. *normale*, b. mf. *validius*, c and d. mf. *robustum*, e. mf. *molluscoides*, f. mf. *spectabile*.

$\frac{3}{4}$ of natural size.

Mf. *validius* and mf. *spectabile* are common in the swampy forests of Central and Eastern Tierra del Fuego. In real peat-bogs (e.g., in open *Sph. magellanicum* peat-bogs), on the other hand, modifications grow principally that are intermediary between mf. *validius* and mf. *normale* in their habitus.

Mf. *robustum* is the most common modification in the region of pluvial forests (Fuegia occ.), but mf. *molluscoides* also grows there fairly frequently. The former occurs especially in waterholes of open peat-bogs or other very watery places, the latter often on

almost clear, damp mineral soil, e.g., on serisite sand. In addition to these mf. *validius* and mf. *spectabile* also grow in the region of pluvial forests and, of course, a numerous group of intermediate grades between all four modifications.

In fig. 2 the modifications of *Sph. fimbriatum* on different growing sites are photographed from specimens brought from Tierra del Fuego.

Sphagnum falcatum Besch.

In paludibus apertis in regione silvarum sempervirentium fqq. Ad orientem—orienti-septentrionem versus sine dubio subito rarescit; limitem orienti-septentrionalem *Nothofagi betuloidis* vix transit. A me in Fuegia media omnino non lecta.

This species is a typical representative of the open peat-bogs in Fuegia occ. and grows there commonly in pools and generally in the lowest places. It often forms a pure tuft and *Sph. fimbriatum* (mf. *robustum*) also occurs frequently in association with it.

mf. *inundatum*. Fuegia occ. Fj. Martinez, in isthmo inter fjordum et Canal de Beagle.

This modification caused by extremely rainy and aqueous circumstances has more densely ramulated stems and comparatively broad ramular leaves. The stem leaves are about 2 mm long and 1 mm broad, and the ramular leaves about 3 mm long and 1.2 mm broad.

The extreme inundated modification of the species is mf. *simplex* which only has simple, homophyll, slender stems without a ramulus. I found such a modification growing in pools in association with mf. *inundatum*.

Note 1. N:o 249 collected by DUSÉN at Río Azopardo and determined by WARNSTORF as »*Sphagnum Torreyanum* Sulliv.» cannot be anything but a modification of *Sph. falcatum*. *Sph. Torreyanum* is therefore absent, at any rate so far, from the flora of Tierra del Fuego.

Note 2. The numbers given by WARNSTORF (1911, p. 221) regarding the average size of the leaves of *Sph. falcatum* are too low. According to my measurements the stem leaves of the species are about 2 mm long and 1 mm broad, and the ramular leaves

about 2.0–2.5 mm long and 0.7–0.9 mm broad. BESCHERELLE (1889, p. 312 and pl. 6, fig. XXI) also has given the size of the leaves too low.

Note 3. No 672 collected by DUSÉN on the Islas Guaitecas and named *Sph. cuspidatum* var. *submersum* cannot be anything but a near form to *Sph. falcatum*. The form of the stem leaves and the pores of the hyaline cells of the branch leaves are exactly the same as in the case of *Sph. falcatum*. DUSÉN's specimen No. 619, likewise collected on the Islas Guaitecas and classed as *Sph. cuspidatum* var. *falcatum*, can also not belong to the sphere of *Sph. cuspidatum*. It may possibly be an independent species near to *Sph. falcatum* and *Sph. subfalcatum* (n. sp.), characterised among other things by the limbus of the branch leaves being exceptionally narrow, only 1–2 stratoses. From DUSÉN's specimen I conclude that its growing site, too, differs from the growing sites of other species near to *Sph. falcatum*, for in DUSÉN's specimen it is mixed with *Sph. magellanicum* — thus occurring in the same way as *Sph. angustifolium* Jens. [= *Sph. amblyphyllum* Russ. var. *parvifolium* (Sendt.)] in Fennoscandia.

Sphagnum subfalcatum Roiv. n. sp. — Fig. 3.

Habitu Sph. balticum paulum accedit, sed constructione foliorum cauliumque Sph. falcatum subsimile.

Caulis sordide flavus–pallido-fuscus, dense ramulosus. Ramuli ca. 6–7 mm longi, in apice falcati. Cellulae epidermales caulinae in stratis 2–1 a cellulis cylindri lignosi distincte majores et minus incrassatae. Folia caulina numerosa, maxime concava, triangulo-lingulata, ad apicem versus cellulis hyalinis distincte fibrosis, apice fimbriato-dentato, ca. 0.6–0.8 mm lata et ca. 1.1–1.3 mm longa; limbus ad basin versus vix dilatatus. Folia ramulina 1.5–1.8 mm longa, 0.6–0.8 mm lata, ovato-lanceolata, limbo 3–4-stratoso, ad apicem versus vix serrulato. Cellulae chlorophylliferae in sectione transversali late oblongae vel ovales, utroque latere liberae. Cellulae hyalinae interiore superficie poris parvis non annulatis, ex maxima parte commissuralibus, instructae.

Stationes: Fuegia media, Río Bueno, in palude aperta *Sphagni magellanici*, locis aquosissimis crescens, st ep; Lago Fagnano, in palude aperta prope ostium fluminis Río Claro.

The species described above seems to be a sufficiently good one. In its anatomy, it comes very near to *Sphagnum falcatulum*, but its chlorophyll cells are broadly oblong or ovate, in transversal section, and the pores of the ventral side of the hyalinous cells are not annulated. Habitually, there is a great difference between these mosses. The new *Sph. subfalcatulum* is much smaller, densely but very shortly ramulated with numerous stem leaves.

I found the species growing in pools and covered growing sites on *Sph. magellanicum* peat-bogs close to Río Bueno and Lago Fagnano.



Fig. 3. *Sphagnum subfalcatulum* Roiv. n.sp. — a. branch leaf $40\times$, b. ventral side of cells from central part of leaf $250\times$, c. cells in cross-section, ventral side at left $300\times$, d. stem leaf $40\times$, e. part of stem in cross-section $250\times$.

Sphagnum personatum Roiv. n. sp. — Fig. 4.

Habitu Sph. ripario robusto assimile, sed constructione anatomica Sph. falcatulo affine. Caules pallidi, modice ramulosi. Ramuli 3-4:ni (quorum 2 subpenduli), sensim attenuati, ca. 1.5 cm longi, erecti. Cellulae epidermales caulinae in stratis 3-2 a cellulis cylindri lignosi distincte majores et minus incrassatae. Folia caulina triangulo-lingulata, prope apicem nonnullis cellulis hyalinis modice vel indistincte fibrosis, apice fimbriato-dentato, ca. 2.0-2.3 mm longa et 1.0-1.2 mm lata; limbus latus, ad basin versus modice dilatatus. Folia ramulina 2.5-3.0 mm longa et 0.8-1.0 mm lata, lanceolata, limbo 4-6-stratoso, minute serrato, marginibus saepe incurvatis. Cellulae chlorophylliferae in sectione transversali late trapezoidaeae (ovato-trapezoidaeae) vel triangu-

lares, utroque latere liberae, rarius latere ventrali inclusae. Cellulae hyalinae plerumque incrassatione membranae longitudinali fibriformi, latere ventrali poris satis parvis commissuralibus, non annulatis, dorsali angularibus, instructae.

Statio: Prov. de Magallanes, Isla Clarence, Estero Staples, in fossa parvula in palude aperta, in vicinitate *Carphae schoenoidis*, *Donatiae fascicularis*, etc., crescens.

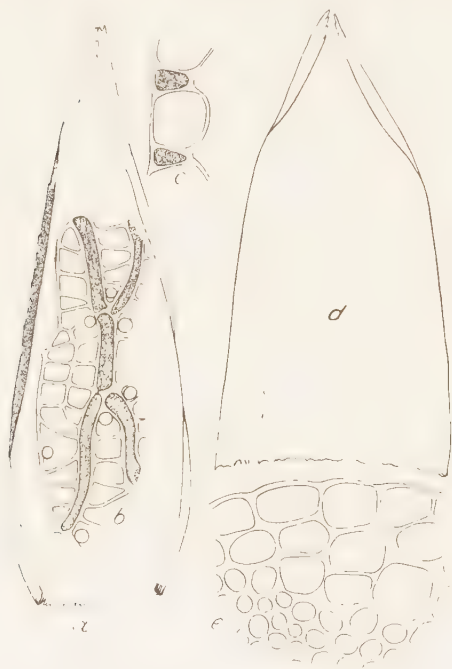


Fig. 4. *Sphagnum personatum* Roiv. n.sp. — a. branch leaf 30 ×, b. ventral side of hyalin and chlorophyll cells from central part of leaf 270 ×, c. cross-section of central leaf cells (ventral side at right) 270 ×, d. stem leaf 30 ×, e. part of stem in cross-section 130 ×.

This species, in its anatomic structure, also displays a close family relationship to *Sph. falcatulium*, although in its habitus it is reminiscent to a considerable extent of the large, elegantly growing *Sph. riparium*. The ramules are not falcated, about 1.5 cm long. The stems have a 3-2-stratose superficial cellular tissue distinctly distinguished from the smaller inner cells. The stem leaves have a smaller number and often not so distinctly fibrose hyaline cells in the apical part than those of *Sph. falcatulium*; they are about 2.0–2.3 mm long and 1.0–1.2 mm broad; the limbus is broad, broadening moderately in the basal part of the leaves. The ramuline leaves are 2.5–3.0 mm long and 0.8–1.0 mm broad and have a 4–6-stratose limbus.

Many of the hyaline cells are instructed with a longitudinal fibriform incrassation of the membranes.

Sphagnum subserratum Roiv. n.sp. — Fig. 5.

Habitu ad formas quasdam Sph. cuspidati vergens, colonias virides formans. Caules ad apicem versus pallido-virides, tenues. Cellulae epidermales caulinae a cellulis interioribus vix diversae; cylindrus lignosus male evolutus, e cellulis paullo minoribus sed non incrassatis constructus. Folia caulina triangulo-lingulata, 1.5–1.8 mm longa, 0.9–1.1 mm lata, cellulis hyalinis ad apicem versus distincte fibrosis; limbus angustus, ad basin versus vix dilatatus; apex rotundatus, fimbriato-serratus. Folia ramulina laxa, lanceolata, serrata, 3–4 mm longa, ca. 0.8–0.9 mm lata, limbo 2–3-stratoso. Cellulae chlorophylliferae in sectione transversali oblongo-ovatae vel brevissime oblongo-rectangulares, utrinque liberae, hyalinas saepe vix minores. Cellulae hyalinae ex maiore parte e fibrosae, angustissimae, aporosae; fibrosae cellulae utroque latere poris paucis angularibus instructae, plerumque longitudinaliter septatae.

Statio: Fuegia media, Río Bueno, in palude aperta *Sphagni magellanici*, in locis aquosis, imprimis in ripa rivuli paludosi, crescens.

This moss seems to be nearly related to *Sph. serratum* Aust. Between the epidermal and inner cells of the stems only a very indistinct differentiation can be observed. The limbus of the stem leaves is very narrow, not dilatated at the basal part. Many of the upper hyaline



Fig. 5. *Sphagnum subserratum* Roiv. n.sp. — a. branch leaf 30 ×, b. ventral side of cells from lower and upper part of leaf 350 ×, c. cross-section of cells, ventral side up, 500 ×, d. stem leaf 30 ×, e. part of stem in cross-section 270 ×.

cells of the stem leaves are distinctly fibrose. The ramuline leaves are toothed, very narrowly (2–3 stratose) limbed, with, in transverse section, capacious, round-faced or quite short rectangular chlorophyll cells, free from both the ventral and dorsal surface. The hyaline cells are for the greater part efibrose and aporose; the fibrose minor number of these cells is provided with few angular pores.

Sphagnum dissimile Roiv. n.sp. — Fig. 6.

Habitu ad Sph. falciculatum vergens, sed ramuli ad apicem versus vix falciculati. Elatum, modice ramulosum, cineréo-viride. Caules

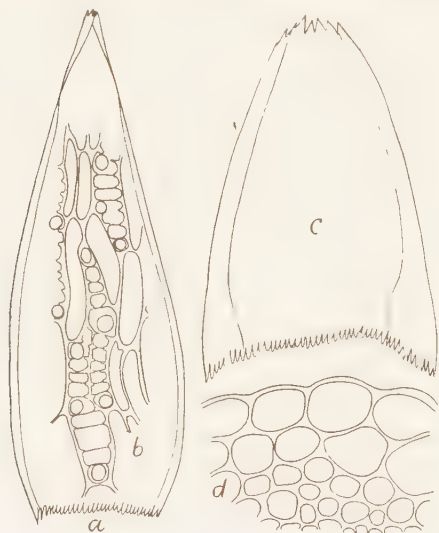


Fig. 6. *Sphagnum dissimile* Roiv. n. sp. — a. branch leaf 30 ×, b. ventral side of cells from central part of leaf 350 ×, c. stem leaf 30 ×, d. part of stem in cross-section 225 ×.

pallidi vel pallido-fusci, cellulis stratorum duorum superficialium a cellulis cylindri lignosi distincte majoribus et multo minus incrassatis. Folia caulina fere triangularia, efibrosa, 1.3–1.5 mm longa et 0.9–1.0 mm lata, apice rotundato-fimbriato, limbo lato, ad basin versus sensim dilatato. Folia ramulina ovato-lanceolata, non falciculata, ca. 2.0–2.2 mm longa et 0.7–0.9 mm lata, limbo lato, 4–6-stratosa, marginibus subintegris. Cellulae chlorophylliferae in sectione transversali ample ovatae — ovato-oblongae, utrinque liberae, in diam. a cellulis hyalinis vix minores.

Cellulae hyalinae interse dissimiles, ex parte fibrosae, ex parte efibrosae et chlorophylliferarum omnino similes; cellulae fibrosae prope semper longitudinaliter septatae, ad apicem versus interdum fibris imperfectis, partim non evolutis instructae, latere ventrali poris magnis commissuralibus non annulatis ornatae.

Statio: *Fuegia occ.*: Fj. Finlandia, Bahia Kairamo, locis apertis aquosis, recrescentibus paludium *Donatiae fascicularis* et *Sphagni magellanic*.

Closely as this species habitually resembles *Sph. falciculatum*, it may be immediately distinguished from it by the proportionally short and nearly triangular stem leaves with totally efibrose cells and the ramuline leaves, which are not falcated and on the ventral side of the hyaline cells instructed with large, not annulated pores. The hyaline cells, in addition, are very varied in their structure. Some of them are efibrose, quite similar in aspect to the chlorophyll cells, but others are fibrose and septated lengthwise. In some of the hyaline cells, especially at the apical part of the leaves, the transversal fibres have partly remained undeveloped, giving the cells quite a special aspect.

Note. It is possible, that my *Sph. dissimile* is synonymous with *Sph. undulatum* Warnst. I have not seen any good specimens of this species, but according to the description by WARNSTORF (1911, p. 211) great affinities seem to exist, at all events, between the two mosses.

Sphagnum dusenioides Roiv. n.sp. — Fig. 7.

Habitu Sph. Dusenii subsimile. Caules 10–20 cm alti, pallidi—pallido-fusci, stratis duobus (2–1) epidermalibus a cylindri lignosi manifeste diversis. Ramuli densiusculi, 3–(4) :ni, quorum 2 subpenduli, partibus apicalibus falcatis, usque ad 1.4 cm longi. Folia caulina triangulo-lingulata, concava, efibrosa vel indistincte fibrosa (cellulae nonnullae apicales), limbo angustiusculo ad basin versus paulum dilatato, marginibus in apice rotundato-fimbriato incurvatis, 1.5–1.7 mm longa et ca. 0.9–1.0 mm lata. Folia ramulina ovato-lanceolata, falcatula, concava, limbo 3 4-stratoso, subintegro, ca. 2.0–2.2 mm longa et 0.6–0.8 mm lata. Cellulae chlorophylliferae in sectione transversali triangulae, vel ovato-triangulae, in latere ventrali plerumque inclusae, vel fere liberae. Cellulae hyalinae poris ventralibus sat numerosis sat magnis non annulatis, dorsalibus paucis angularibus, instructae; ad basin versus nonnumquam longitudinaliter septatae; nonnullae efibrosae.

Statio: *Prov. de Magallanes*: Isla Clarence, Estero

Staples, in palude aperta ex parte u.c. *Dicranolomate Harioti* et *Drosera uniflora* crescens.

In its habitus this moss recalls *Sph. Dusenii*, but anatomically it is between *Sph. falcatum* and *Sph. personatum*. The ramules

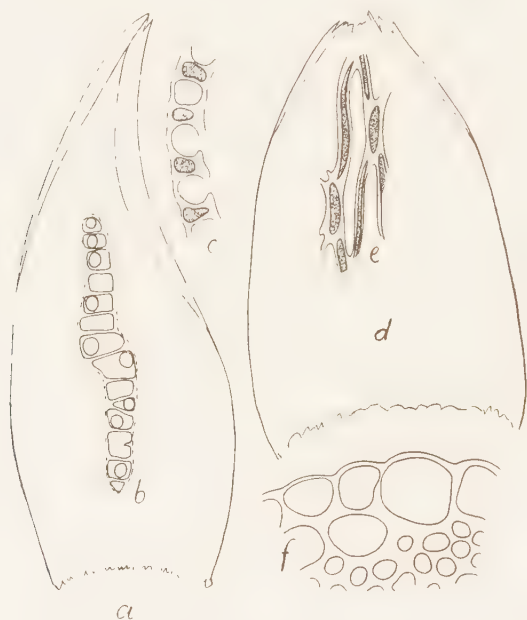


Fig. 7. *Sphagnum dusenioides* Roiv. n.sp. — a. branch leaf 35 ×, b. ventral side of hyalin cell from central part of leaf 350 ×, c. cross-section of cells 270 ×, d. stem leaf 35 ×, e. upper cells of stem leaf, f. part of stem in cross-section 270 ×.

are distinctly falcated, just like the ramuline leaves. The epidermal cells of the stems are 2(-1) stratose; the lignose cylinder has very thick membranes. All the branch leaves I have studied are of quite small dimensions with regard to their hyaline cells in transversal section (about 15 μ). The pores on the ventral side of the branch leaves are relatively large and numerous. The stem leaves are totally or nearly efibrose.

Sphagnum magellanicum Brid.

In ultima regione pacifica austro-occidentali, ut videtur, r-r invenitur. Pr.e. in Isla Clarence (Prov. de Magallanes) a me non visa nisi in 2 silvis humidissimis umbrosis *Nothofagi betuloidis* u.c. muscis variis hepaticis, *Ptychomnio cygniseto*, *Dicranolomate robusto*, etc. crescens. Etiam prope portum Pto Queta in silvis solum crescentem (neque in paludibus apertis) observavi. Deinde, iam in Bahia Kairamo (in parte occidentali fjordi Finlandiae) typos paludium ei proprios format, quamquam id et *Donatia fascicularis* ibi saepe coniunctim proveniunt. Ad NO versus a Seno Almirantazgo, usque ad limites pampae apertae fqq est, montium altitudines solum evitans. Ibi in regione *Nothofagi pumilionis* maximam abundantiam consecutus, plurima loca amplissima palustria turfa repleta creans. In pampa iterum subito rarescit, periit, sed in regionibus ad SO ab oppido Río Grande, ubi silva alta denuo provenit, etiam muscus noster emergit.

When we compare another common peat-moss in Tierra del Fuego, *Sphagnum fimbriatum*, with *Sph. magellanicum*, we find that the area in which the former occurs is larger, but the latter is found in much greater abundance and forming enormous masses of peat in its own favourite area, the *Nothofagus pumilio* zone. The rainfall and other growth factors are evidently most favourable there to *Sph. magellanicum*.

Sph. magellanicum varies very much in its habitus — just as *Sph. fimbriatum* — on different growing sites, but the anatomical structure of the species itself does not vary. I made many observations of this in nature, too, in different conditions, and have come to the conclusion that the different forms of it are undoubtedly only modifications. Of such evident forms of growing sites WARNTORFF (1911, p. 489-490) has made variations. CARDOT et BROTHERUS (1923, p. 4) mention the following forms collected by SKOTTSBERG: »var. *virescens* Warnst.», »var. *congestum* (Schimp.) Schlieph. et Warnst.», »var. *roseum* Warnst.», »var. *purpurascens* Warnst.» and »var. *violascens* Warnst.» I, too, found similar forms of all these and established them, as already stated, to be modifications, as also »var. *pallido-carneum* Warnst.» (N:o 240) and »var. *fusco-rubellum* Warnst.» (N:os 91 and 641) in DUSÉN's collections.

Similar to the last and to »var. *congestum*» in aspect the species

occurs very abundantly and commonly in the tufts of open peat-bogs in which its colonies become hardest and most compact and individual stems most densely branched. In the lower parts of the hummocks and between them its aspect changes gradually, evidently owing



Fig. 8. Fuegian modifications of *Sphagnum magellanicum*. — a and b. typical for open *Sph. magellanicum* peat-bogs; c and d. modifications growing in shadowed habitats (mf. *pallescens* and mf. *virescens*): e. from swampy forests of Fuegia occ. $\frac{3}{4}$ of nat. size.

to the increasing humidity and better protection from the wind. The tufts become sparser and looser, the branchiness of individual stems sparser and the branches longer and more slender at the apical part. Thus we have by degrees passed from modifications of higher parts of the hummocks to a modification of the more humid soil which is represented by »var. *purpurascens* Warnst.» In more shaded and apparently, too, in less acid places than those

referred to, the species becomes slightly redder in colour (»var. *pallido-carneum* Warnst.) or loses its red colour entirely. On the margins of peat-bogs and in shaded swampy forests these modifications are often very pale (»var. *pallescent* Warnst.), but in many cases, too, they are tinged with green (»var. *virescent* Warnst.). Apparently it takes on this garb on its most fertile habitats.

In order to illustrate the aspect of the different modifications I have reproduced them above, photographed side by side (fig. 8).

ANDREAEACEAE

Acroschisma Wilsonii (Hook. fil. et Wils.) Jaeg.

Fuegia occ.: Fj. de Agostini, Bahia Groth-Hansen, ad saxa sericitica in litore aperto, g II vet. et nov., st ep. Sine dubio species \pm rara, in regionibus pluvialibus proveniens. Adhuc in Fuegia in uno solo loco (Lago Fagnano, Bahia de la Expedición) a HALLE a. 1908 inventa (CARDOT et BROTHERUS 1923, p. 5).

BROTHERUS (1924 a, p. 129) has retained this species in the *Andreaea* genus, though forming its own subgenus. In my opinion the structural characteristics of the species differ so much in the most important points from the structure of the *Andreaea* species that it is most consistent to attribute it to a genus of its own. The long cylindrical capsule that only splits into flakes from the top, when it opens, is, in my opinion, already a sufficient difference for a moss-genus. There are, indeed, less significant differences between many other closely allied genera (*Seligeria Blindia*, *Didymodon-Barbula* etc.).

Andreaea leiophylla Card.

Fuegia occ., Monte Buckland, 1,200 m s.m., terra glareosa inter lichenes (*Stereocaulon*, etc.), g II nov., pcc.

Andreaea verruculosa Card.

Fuegia occ.: Fj. Martinez, Bahia Plüschow, ca. 500 m s.m. (coll. E. H. KRANCK). *Fuegia* media: Lago Linch, Cerro Chico, ad saxa phyllitica in reg. alp., ca. 550 m s.m., multis locis.

Andreaea acutifolia Hook. fil. et Wils.

Fuegia occ.: Fj. Martinez, Bahía Sarmiento, super rupes humidus, 300 m s.m. Fj. de Agostini, Puerto Encanto, super rupes humidus in litore.

Andreaea grimmii Dus.

Fuegia occ.: Monte Buckland, ad rupes saxaque humidus in ripis rivuli gelidi alpini inter 500–700 m s.m.

This is, perhaps, only a modification of *A. acutifolia*, caused by the running cold water, which fills the small colonies of the moss with fine-grained sand.

Andreaea mutabilis Hook. fil. et Wils.

Fuegia occ.: Monte Buckland, ad rupes phylliticas, 1,000 m s.m. *Fuegia* media: Lago Linch, Cerro Chico, ad saxa rupesque phylliticas in reg. alp. 500–600 m s.m., plurimis locis. Est. Vicuña, Cerro Pedro Grande, ad rupes phylliticas ca. 400 m s.m., st pc. Lago Deseado, in reg. alp. 500–900 m s.m., ad saxa, ad rupes chatarrhactarum, etc. — Verisimiliter st fq–fq in tota regione marginali boreali-orientali Cordilleræ fuegianæ (ad NO versus e Seno Almirantazgo), præcipue in reg. alp.

Note. Number 215 coll. by DUSÉN from Río Azopardo, 1896, and named *Andreaea subappendiculata* n. sp., probably belongs to *A. mutabilis*.

Andreaea alpina Turn.

Fuegia occ.: Monte Buckland, ad rupes præruptas ad occidentem versus expositas, irrigatas, inter 500–700 m s.m. cp crescens. Fj. Finlandia, sub radicibus montis Monte Nylandia, ad rupes litorales sp crescens. *Fuegia* media, Pto Yartou, Pico Nariz, ad rupes humidus phylliticas in reg. alp., 750 m s.m.; ibid., in loco humido arenoso super rupes phylliticas, 700–750 m s.m.

I have compared my collections with several specimens of *A. alpina* collected in Norway, but I have been unable to find any good distinguishing characteristics between them. In aspect they correspond excellently; the form of the leaves, the structure of the cells and the crenulation of the leaf margins is also exactly the same — varying within the same limits.

The following specimens collected in Tierra del Fuego, West Patagonia or some antarctic island are, in my opinion, thoroughly identical with *A. alpina*:

N:o 627 b, coll. by DUSÉN from Patagonia occ., Islas Guaitecas, 30 April 1897 (named *Andreaea brevifolia* Dus.)

N:o 627 coll. by DUSÉN from the same place as above and named *Andreaea lanceolata* Dus.

N:os 114 and 116 coll. by HALLE et SKOTTSBERG from Falkland, Mt Adam, 13 December 1907 (named *Andreaea lanceolata* Dus.).

N:o 281 coll. by DUSÉN from Isla Desolación, 1896, and named *Andreaea loricata* Dus.

N:o 103 coll. by HALLE from Tierra del Fuego, Lago Fagnano, Bahía de la Expedición, 1908, and named *Andreaea loricata* Dus.

N:os 142 and 220 coll. by DUSÉN from Tierra del Fuego, Río Azopardo, 1896, and named *Andreaea pseudoalpina* C. Müll.

N:o 270 coll. by DUSÉN from Isla Desolación, 1896, and named *Andreaea ruficaulis* Dus.

Specimen coll. by NAUMANN from Kerguelen, December 1874, and named *Andreaea squamata* C. Müll.

N:o 253 coll. by SKOTTSBERG from South Georgia, Cumberland Bay, 1902, and named *Andreaea squamata* C. Müll.

N:o 456 coll. by DUSÉN from West Patagonia, Río Aysen, 19 January 1897, and named *Andreaea squamata* C. Müll.

Specimens coll. by NAUMANN from Kerguelen, December 1874, and named *Andreaea Naumanni* C. Müll.

A species very near to *A. alpina*, too, is *A. parallela* C. Müll. — at any rate according to the specimen collected by SKOTTSBERG (Coll. N:o 250, in 1902) in South Georgia and determined by CARDOT.

Andreaea latinervis Bartr. n.sp. — Fig. 9.

Pulvini densi, fuscuscentes. Caulis fastigiatus, divisus, 4–5 cm longus. Folia circa 1.5 mm longa e basi oblonga erecta, concava, triangulari-lanceolata, costata; marginibus inferne inflexis, minute crenulatis, superne erectis, integris; costa depressa ubique bistratosa, $\frac{1}{6}$ basis et totum acumen occupans; cellulae laeves, basiliares lineares, parietibus longitudinalibus incrassatis, sinuosis, caeterae rotundatae, parietibus incrassatis. Folia perichaetia intima longe convoluta, ad 2.2 mm longa, obtusa; capsula exserta; sporae papillosae, diam. ad 30 μ .

Statio: Fuegia occ.: Monte Buckland, ad rupes irrigatas nec non ad saxa rivuli alpini, ca. 550 m s.m.; ibid., ad terram arenosam humidam in marginibus rivuli gelidi, 600–700 m s.m., puras colonias formans, g II.

Dioicous? Reddish brown densely tufted plants. Stems slender, flexuose, 4–5 cm high, fastigiate branched above the middle. Lower leaves persistent, considerably eroded, upper leaves about 1.5 mm long from an erect, oblong, clasping base rapidly narrowed

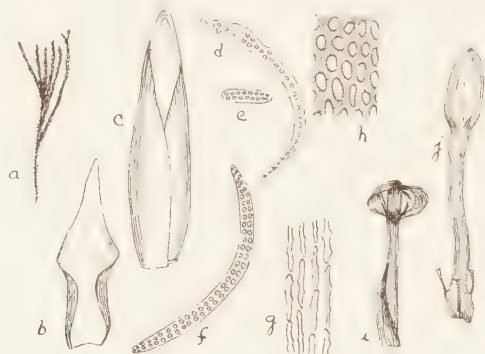


Fig. 9. *Andreaea latinervis* Bartr. n.sp. — a. plant $\frac{1}{2} \times$, b. stem leaf $16 \times$, c. perichaetial leaf $16 \times$, d. part of cross-section of leaf from extreme base $80 \times$, e. cross-section of leaf near apex $80 \times$, f. cross-section of leaf just above the shoulders $80 \times$, g. basal leaf cells $200 \times$, h. upper leaf cells $200 \times$, i. dry capsule $8 \times$, j. moist capsule and pseudopodium $8 \times$.

to a blunt, concave, triangular point, \pm panduriform; margin erect, inflexed near the middle, entire above, minutely crenulate near the leaf shoulders, entire below; costa narrow at the extreme base, rapidly broadening upward and occupying the entire width of the blade from the shoulders upward; lower leaf cells linear, incrassate with sinuose lateral walls, upper cells rounded, incrassate, smooth, $5\text{--}7\mu$ in diameter. Perichaetial leaves clearly differentiated from the stem leaves, 2–2.2 mm long, ovate-oblong, convolute-clasping below, rounded at the apex; capsule 1–1.2 mm long, exserted on a short pseudopodium when mature, finally splitting vertically in about 4 valves; spores slightly papillose, up to 30μ in diameter.

In addition to the above Mr BARTRAM writes as follows:

»The affinities of this species are evidently *A. depressinervis* Card., but the broad, thin nerve occupying the entire width of the blade from the shoulders of the leaf to the apex is a very unique character. From the fact that the bistratose structure is differentiated from the unistratose lamina toward the extreme base I am inclined to think that this thickened portion of the leaf may represent a very simple type of costa in which case the species should be included

in the Section *Nerviae* of *Euandreaea* on account of the well differentiated perichaetial leaves.»

Andreaea pachyphylla (C. Müll.) Broth.

Fuegia o c c., Monte Buckland, in ripa arenosa vel arenoso-sabulosa rivuli frigidissimi ex nivibus eternis decurrentis, ca. 1,000 m s.m. non pc.

Andreaea subulata Harv.

Fuegia o c c.: Fj. Finlandia, ad rupes humiditas et umbrosas in silva *N. betuloidis* prope litus sub radicibus montis Monte Nylandia, st pc, g II; ibid., Brazo Aino, ad rupes irrigatas litorales, g II. Fj. Martinez, Bahia Plüschow, ad saxa rupesque sericiticas in litore, st pc – pc.

Note. I hold entirely the same opinion as BARTRAM of many subantarctic and antarctic species of the genus *Andreaea*. »Any practical classification of the austral species of *Andreaea* will probably involve a radical reduction in the number of species», is BARTRAM's opinion on the matter. I have enumerated a list of names above that are, in my opinion, quite synonymous with *Andreaea alpina*. A whole lot of others probably exist, but in this connection I have not had an opportunity of examining the matter more closely. Among the materials of BROTHERUS' Herbarium (belonging to the Botanical Museum of the University of Helsinki) that I examined, the following species proved good species, clearly distinguished from all those enumerated above: *Andreaea regularis* C. Müll., *A. remotifolia* Dus. (= *A. purpurascens* Dus.), *A. depressinervis* Card., *A. opaca* Card. (the form of the leaves is nearly the same as in *A. latinervis* Bartr.) *A. Willii* C. Müll. and, perhaps, also *A. Gainii* Card.

Neuroloma fuegianum Card.

Fuegia o c c.: Monte Buckland, ad rupes irrigatas ad occidentem versus expositas, 600 m s.m., u.c. *Andreaea alpina* crescens, st cp.

FISSIDENTACEAE

Fissidens rigidulus Hook. fil. et Wils.

Prov. de Magallanes, Río de las Minas, ad saxa in valle fertili, pc.

DITRICHACEAE

Ditrichum conicum (Mont.) Par.

Fuegia occ.: Fj. Finlandia, Brazo Aino, in arena fina in ripa humida rivuli glacialis, ca. 50 m s.m., g II, non parce; *ibid.*, in fissuris rupium, g II. Fj. Martinez, Bahia Sarmiento, ad rupes humidas horizontales, in fissuris parvulis, ca. 300 m s.m., g II, u.c. *Blindia curviseta* crescens.

SKOTTSBERG (CARDOT et BROTHERUS 1923, p. 16) collected this plant near the Darwin glacier in the neighbourhood of Beagle Channel. The var. *glaciale* Card. et Broth., collected by SKOTTSBERG in the same place, is, perhaps, only a modification caused by the humid, streaming glacier sand.

Ditrichum Hookeri (C. Müll.) Hampe.

Fuegia occ.: Fj. Finlandia, prope Monte Nylandia; *ibid.*, Brazo Aino; *ibid.*, Bahia Relander. Fj. de Agostini, Bahia Groth-Hansen; *ibid.*, Pto Encanto. Fj. Martinez, in isthmo inter fjordum et Canal de Beagle, multis locis; *ibid.*, Bahia Sarmiento, usque ad 350 m s.m. Canal de Keats, Pto Queta. Fj. Tristeza. Prov. de Mag.: Isla Clarence, Estero Staples; *ibid.*, Pto Beubasin.

Praecipue in saxis rupibusque sericiticis humidis crescit, nutrimento saepe turfae valde humifactae, arena fina mixtae, usus; in intima associatione cum muscis hepaticis vel colonias puras formans et ad saxa rivulorum glacialium et ad rupes litorales provenit, plerumque g II et \pm cp. Certe regioni litorali pacificae solum obligatum; ibi st fq – fq invenit.

As CARDOT (1908, p. 87) observes, this species is very varied. Falcated (mf. *falcatum*) and orthophylle (mf. *orthophyllum*) forms occur in many localities. These forms are probably not hereditary.

Some specimens collected by me on Isla Clarence, Pto Beubasin, are difficult to distinguish from *Ditrichum longisetum* (Lor.) Hampe.

It is possible that on the basis of more extensive materials it may be established that these species are connected with each other without any distinct limit.

Ditrichum Hallei Card. et Broth.

Fuegia media: Est. Vicuña, Cerro Pedro Grande, in fissuris parvulis rupium phylliticarum u.c. *Pseudodistichio austrogeorgico*, pcc, g II; ibid., Puesto 20, Cerro Fuentes, ad rupes phylliticas gradibus exsurgentes, nutrimento turfae arenosae usus, in reg. subalp. superiori, 550 m s.m., g II, pc.

This latter locality is situated about 20 km to the north of the original locality of HALLE on Lago Deseado. The species is, perhaps, by no means rare in the intermediate and eastern Cordillera, where the deposits are moderate. The area of the species may be proportionally large, because I collected it also from Cordillera de Chillán, lat. about 37° S (ROIVAINEN 1934, p. 27).

Ditrichum stenostomum Card.

Fuegia media: Est. La Marina et Est. Los Cerros, terra subsicca aperta parce graminosa, humoso-arenosae qualitatibus, in pluris pascuis u.c. *Bartramia patenti* et *Pseudodistichio austrogeorgico* associans, ex minore parte g II. P r o v. d e M a g.: Penins. Brunswick, Pto San Isidro, ad rupes gradibus exsurgentes, substrato argilloso-arenoso, ex parte u.c. *Plagiothecio* cfr *denticulato* et muscis hepaticis crescens, g II.

Hitherto known only in *Fuegia austr.*, Pto Harborton (SKOTTSBERG, N:o 46). It is probably a species of the contact region of the pampa and forest, but flourishes on rocks also in regions with more rain.

Ditrichum Roivaineni Bartr. n.sp. — Fig. 10.

Dioicum, lutescenti-viride. Caulis gracilis, erectus, 5-7 mm altus. Folia sicca erecta, contorta, humida patentia, 1 mm longa, e basi ovata lineari-subulata, obtusa, integra; costa valida, sub summo apice evanida; cellulis inferioribus rectangularibus, superioribus subquadratis. Folia perichaetialia intima convoluta, vaginantia, obtusa. Pedicellus rubellus,

8–10 mm longus. Capsula erecta, 1–1.2 mm longa, os versus angustata; operculo ignoto; peristomium papillosum, membrana basilari brevissima, dentibus inferne rubellis; sporae laeves, diam. 10–12 μ .

Statio: Fuegia occ., Fj. Finlandia, Brazo Aino, arena humida sericitica super rupes prope glaciem, ca. 50 m s.m., u.c. *Anisothecio Hookeri* crescens, st ep, g II.

Fig. 10. *Ditrichum Roivaineni* Bartr. n.sp. — a. plant $\frac{1}{2} \times$, b. leaf $40 \times$, c. apex of leaf $200 \times$, d. basal leaf cells $200 \times$, e. inner perichaetial leaf $15 \times$, f. outer perichaetial leaf $15 \times$, g. capsule $9 \times$, h. part of peristome $80 \times$.



Dioicous, male plants slender, mixed with the fertile plants, flowers gemmiform, 1 mm long, antheridia few mixed with slender paraphyses of about the same length, outer bracts lanceolate-subulate from a broadly ovate base, inner bracts ovate short pointed. Small, slender plants, rather densely tufted, dull yellowish green. Stems erect, simple, 5–7 mm long. Leaves erect, appressed, slightly contorted when dry, erect-spreading when moist, 1 mm long, linear-subulate from an ovate base, blunt at the apex; margin plane, entire, usually inflexed on one side; costa about 45 μ wide below, ending just below the apex; basal cells rectangular, pellucid, 5–6 times as long as wide, upper cells smooth, quadrate or short rectangular, 5–6 μ wide. Perichaetial leaves 2 mm long, sheathing, abruptly narrowed to a short, blunt point. Seta erect, dark red, 8–10 mm long. Capsule ovate-oblong, slightly narrowed at the mouth, reddish brown, 1–1.2 mm long; annulus of 1 or 2 rows of cells; peristome teeth split to the base into two filiform divisions, reddish below, paler above, densely papillose; lid and calyptra unknown; spores pale, smooth, 10–12 μ in diameter.

The shorter entire leaves, not noticeably homomallous, and especially the quadrate areolation of the upper part of the leaf

blade will distinguish this species from *Ditrichum homomallum* (Hedw.) Hampe.

Note. The specimens I sent to Mr BARTRAM unfortunately did not consist of capsules with the lid and calyptra. Among my materials there are individuals with these organs. The lid is nearly symmetrical, of narrow and high anthill form, about twice as long as they are wide. Calyptra very oblique, about 1.3–1.5 mm long, covering only the lid and the mouth of the capsule.

Ceratodon purpureus Brid.

Specimina ex locis sequentibus. *Fuegia occ.*: Canal de Keats, Pto Encanto, ad turfam ustam *Sphagni magellanici*, g II. Isla Dawson, Pto Valdez, in fissuris rupium gradibus exsurgentium, g II. *Fuegia media*: Río Bueno, in omnibus paludibus apertis, super grumos sicciore destructos *Sphagni magellanici*, praecipue in locis ustis copiosissime g II; ibid., in nonnullis areis ustis in nemoribus *N. pumilionis*, g II. Pto Arturo et Pto Yartou fq; in locis ustis cp - cpp. Prope Pto Arturo etiam in silva *N. betuloidis*, terra arenosa cum g II inveniens. In tota *Fuegia media* oviariorum et silvarum deflagrationum causa celeriter diffundens. *Fuegia or.*: Cabo San Pablo; Río Grande; Est. Sara; Est. Rubi. *Fuegia bor.*: Porvenir; Bahia Gente Grande. *Prov. de Mag.*: Isla Elisabeth fq, g II. In oppido Magallanes. Río de las Minas, Minas Loreto. Penins. Brunswick, Pto San Isidro, in plurimis locis.

Distichium capillaceum (Hedw.) Bryol. eur.

Fuegia occ.: Isla Dawson, Pto Valdez. *Fuegia media*: Lago Blanco, Puesto de los Indios. Est. Vicuña, Cerro Pedro Grande; ibid., Campo 13 B.; ibid., Puesto 20. Lago Deseado. Lago Fagnano, Punta Pizarro. *Fuegia bor.*: Est. Esperanza. *Prov. de Mag.*: Río de las Minas. Penins. Brunswick, Pto San Isidro. Ubique in fissuris ad rupes phylliticas, saepe in dura certamine pr.e. cum *Lepyrodonte laguro*, *Pseudodistichio austrogeorgico*, *Tortula fuegiana*. Fere semper c. g II.

f. *brevifolium* (Bryol. eur.) *Fuegia media*: Lago Linch, Cerro Chico, 500–600 m s.m. Pto Yartou, Pico Nariz 600–750 m s.m. Est. Vicuña, Puesto 20, Cerro Fuentes, 650 m s.m. Lago Deseado,

600–850 m s.m. Est. Carmen, Cerro Millaldeo, in ripis humidis, turfoso-sabulosis phylliticis rivulorum alpinorum, interdum etiam u.c. *Drepanoclado revolventi* associans. Alioquin solet crescere in fissuris rupium phylliticarum. In regione montana Fuegiae mediae cum formis intermediis normalibusque sine dubio fq.

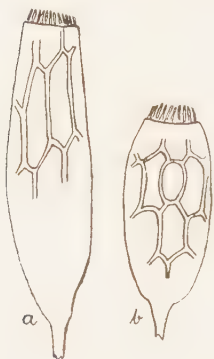


Fig. 11. *Distichium capillaceum* f. *elongatum* Roiv. n.f. (a) and f. *subquadratum* Roiv. n.f. (b). Capsules 18 \times , cells of upper part of exothecium 130 \times .

f. *subquadratum* Roiv. (nova). — Fig. 11. *Cellulae inferiorae in parte vaginanti foliorum circiter 1:10*. Capsula brevis, ca. 1.5–1.5 mm longa, 2: plo vel fere 3: plo longior quam lata. *Cellulae exothecii latae et breves*, ca. 2: 3 vel fere 1: 1, parietibus crassioribus. Seta 1.0–1.5 cm.

Fuegia or.: Cabo San Pablo, ad rupes saxaque tertiarias in litore, g II; ibid., terra humoso-arenosa in ripa fluminis, ex parte cum *Bryo pauperculo* Bartr. n.sp. crescens, g II.

f. *elongatum* Roiv. (nova). — Fig. 11. *Cellulae inferiorae in vaginis foliorum circiter 1: 15–20*. Capsula longior, ca. 2 mm, 3: plo vel 4: plo longior quam lata. *Cellulae exothecii \pm elongatae*, ca. 1: 4–6, parietibus minus crassis. Seta 1.5–2.0 cm.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, ad saxa sericitica, g II; ibid., Bahia Plüschow, ad rupes sericiticas, arena turfosa tectas, muscis nonnullis hepaticis mixtum, g II. Prov. de Mag.: Isla Clarence, Pto Beubasin, ad rupes immensas, nutrimento arenae turfosae usus, in pluris locis, g II.

These two forms appear to occur on opposite sides of the Fuegian island. Whether they are, perhaps, only modifications caused by very different external conditions or hereditary forms, as I suppose, would have to be cleared up.

Pseudodistichium austrogeorgicum Card.

The forms of this plant occurring in Fuegia will be habitually different from the form from South Georgia by CARDOT (1908, p. 208). Leaves are intermediately 4 mm long, the stems 1.5–2.0 cm long. Capsule 1.5–2.2 mm long, peristome always reddish. Lid about

0.7 mm long (fig. 12). Seta 1.2–1.5 cm, often red or in the apical part yellowish. — The anatomy of the leaves and capsules and the size of the spores, on the contrary, are exactly the same as in the original.

I noticed this species in the following localities.

Fuegia media: Pto Yartou, Pico Nariz, in declivibus oriento-septentrionalibus, ad tumulos *Bolacis gummiiferae*, 550 m s.m., g II. Est. Vicuña, Cerro Pedro Grande, in terra humosa, arena phyllitica mixta, in declivibus ad occidentem versus expositis, multis locis, u.c. *Conostomo australi*, *Tortula Anderssonii*, *T. fuegiana*, *Didymodonte recurvirostri* et *Distichio capillaceo* associat, 200–350 m s.m., g II; ibid., Campo 13 B, ad rupes siccas phylliticas, in fissuris, g II, pcc. Est. La Marina, in campis subsiccis graminosis apertis, nutrimento arenae argilloso-humosae usus, ex parte in intima consocietate cum *Ditricho stenostomo*, g II. Est. Los Cerros, ad terram graminosam in declivibus montis prope estanciam, g II. *Fuegia* o r.: Est. Sara, in campo aperto graminoso duobus locis, ad tumulos turfosos valde humifactos crescens, g II. *Fuegia* b o r.: Altos de Boquerón, terra arenoso-humosa ad marginem viae, 300–400 m s.m., g II; ibid., inter Hotel Boquerón et Bahía Inútil, in multis locis ad marginem viae publicae, g II. P r o v. d e M a g.: Penins. Brunswick, Pto San Isidro, in arena fina ad rupes phylliticas litoris, u.c. *Ditricho stenostomo*, g II.

Verisimiliter p s t f q in tota regione marginali Cordillerae oriento-borealis et non minus in regionibus humidioribus pampae fuegianae. Cum meo excurrente in insula Isla Elisabeth et in Gente Grande haec species a me non inventa, arbitror eam in regionibus pampae siccioribus non provenire.

var. *longifolium* Broth. *Fuegia media*: Puerto Yartou, Pico Nariz, ad rupes in reg. alp., ca. 600 m s.m., g II, sp – st cp. Lago Deseado, ad rupes phylliticas et in fissuris, nutrimento arenae finae humo mixtae usus, 500–600 m s.m. in multis locis, prope semper c. g II.

This form probably has no systematical value, but is a simple local modification, a result of favourable circumstances for the vegetative development.

Pseudodistichium fuegianum Roiv. n.sp. — Fig. 12.

Monoicum, *Ps. austrogeorgico* subsimile. Laxe caespitosum, sordide caesio-viride, caulibus suberectis, parce ramosis, ca. 1 cm longis. Folia rigida, *Ps. austrogeorgici* aequalia, cum descriptione CARDOT'is (1908, p. 208) consonantia. Capsula 1.4–2.0 mm longa, in diam. 0.4–0.5 mm, inclinata vel ex parte fere horizontalis, arcuato-cylindrica, basi rotunda, a primo obscure castanea, vetusta sordide pallida. Calyptra 2.5 mm longa, longe acuminata, obliqua, partem summam oralem capsulae tegens. Operculum 0.8 mm longum, obliquum, in apice obtusum. Peristomium ex dentibus 16 angustis, usque ad basin divisis, oblique vel fere longitudinaliter striatis, rubellis, epapillosis, consistens. Sporae 23–28 μ .



Fig. 12. *Pseudodistichium fuegianum* Roiv. n.sp. — b. lid 25 \times , c. calyptra 8 \times , d. capsule 12 \times , e. leaf 16 \times , f. part of peristome 120 \times ; a. lid of *Ps. austrogeorgicum* 25 \times .

Statio: Fuegia media, Est. Viña, Cerro Pedro Grande, in fissuris rupium phylliticarum, ca. 400 m s.m., u.c. *Pseudodistichio austrogeorgico*, pc.

Monoicous, near *Ps. austrogeorgicum*. Will be distinguished from this by proportionally thin and long, nearly cylindrical capsules, very narrow teeth of the peristome and great spores.

Skottsbergia paradoxa Card.

Fuegia media: Est. Cameron, Puesto Medio, in tumulis humoso-argillosis in pratis humidis, g II nova et vetusta, non raro; ibid., in paludibus nonnullis fertilibus in associationibus *Caricis Gayanae* et *C. atropictae*, u.c. *Drepanoclado revolventi* et *Dr. longifolio*, crescens, g II vel ster. Est. Carmen, Puesto Millaldeo, in palude aperta, fertili u.c. *Drepanoclado longifolio* in ass. *C. Gayanae*, c. g II, non parce. Sierra Carmen Silva, in prato paludoso ad grumos parvulos, g II. *Fuegia or.*: Est. Rubi, in palude fertili, in ass. *C. Gayanae*, u.c. *Brachythecio turgenti*, etc. crescens, g II.

Note. My Fuegian specimens of *Skottsbergia paradoxa* have stems up to 10 cm in length, leaves 2.5–3.5 mm in length and seta up to 3 cm in length. The original specimens collected by SKOTTSBERG from South Georgia and described by CARDOT (1908, p. 203) are much smaller, just as numerous other mosses of this region compared to the same species collected from Tierra del Fuego.

SELIGERIACEAE

Blindia curviseta Mitt.

Fuegia occ.: Fj. Finlandia, Monte Nylandia et Brazo Aino, ad rupes sericiticas humidias nec non ad saxa ripasque rivulorum glacialium, c. g II nova et vet., in multis locis, ex parte st ep. Fj. Martinez, in isthmo inter intinum portum fjordi et Canal de Beagle, ad saxa catarrhactae c. g II inveniens. Isla Dawson, Pto Valdez, in ripa turfoso-arenosa fluminis, c. g II; *ibid.*, ad rupes uliginosas prope litus, c. g II. *Fuegia media*: Lago Fagnano, Punta Pizarro, ad rupes humidias phylliticas in ripa prope limites aquae, ster. *Prov. de Mag.*: Penins. Brunswick, Pto San Isidro, ad rupes phylliticas litoris, ster.

Formas cum *Blindia praticola* Card. et Broth. congruentes ex Fj. Finlandia, Brazo Aino et Lago Fagnano, Punta Pizarro, collegi. Sed haec species videtur e *Bl. curviseta* vix distinctum esse. Accedo in quaestione ad sententiam BARTRAM'i, qui scripsit modo sequenti: »Doubtfully distinct from *B. curviseta*. The nerve varies considerably in width and the alar cells too.»

Blindia magellanica Schimp.

Fuegia occ.: Fj. Finlandia, Brazo Aino, in ripa sericitica inundata rivuli glacialis, pcc, c. g II. Fj. Martinez, ad saxa rupesque humidias in isthmo inter fjordum et Canal de Beagle; *ibid.*, Bahia Sarmiento ad rupes humidias sericiticas, usque ad 300 m s.m. proveniens, c. g II, in multis locis.

Blindia inundata Card.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, ad saxa inundata in rivulo, pc, ut videtur. *Prov. de Mag.*: Isla Clarence,

Estero Staples, in ripis sabulosis, nec non ad saxa inundata lacus Lago Laina, non parce; *ibid.*, Pto Beubasin, ad saxa in catarrhacta, st ep.

Blindia tenuifolia (Hook. fil. et Wils.) Mitt.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, in ripa arenosa et sabulosa humida lacusculi, ca. 300–350 m s.m.; *ibid.*, prope lacusculum ad saxa rivuli, c. g II. *Prov. de Mag.*: Isla Clarence, Pto Beubasin, ad saxa ripasque arenoso-sabulosas rivuli, ex parte u.c. *Bl. inundata*, non parce.

According to the diagnoses of HOOKER and WILSON (HOOKER 1845, p. 101) and MITTEN (1869, p. 56) this moss has »elegantier circinato-falcata» (HOOKER 1845, p. 101) leaves. My specimens, on the contrary are \pm distinct orthophyll, the finest of them (when dry) have curly winding stems and leaves.

Blindia pseudorobusta Dus.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, ad rupes sericiticas riparias, aliquando inundatas, coloniae arena fina immixtae ca. 300–350 m s.m., c. g II.

This species of DUSÉN (1905, p. 9) seems to be a good one. It is especially distinguished from *Bl. tenuifolia* already by the very clearly differentiated and numerous alar cells. These have often the transversal cell-walls thicker than the longitudinal. BARTRAM gives the following notes on my specimens: »Approaches *Blindia robusta* Hampe. The strongly circinnate leaves give this plant a strikingly different appearance from *Bl. tenuifolia*. It is deserving of some rank!»

Note. According to the notes of BROTHÉRUS upon the specimens in his Herb. the following names are only synonyms of *Bl. magellanica*: *Bl. consimilis* Card. from the Falkland Islands (Islas Malvinas), *Bl. globularis* Dus. from Río Aysen and *Bl. microdicranum* Dus. from Río Azopardo, Fuegia. — The *Dicranum gracilescens* Dus. from Magallanes, Isla Newton and Islas Guaitecas is nothing but *Bl. curviseta*.

DICRANACEAE

Anisothecium Paludella (Besch.) Broth.

Fuegia occ.: Fj. Martinez, Bahia Plüschow, in nonnullis locis ad rupes arenasque sericiticas humidissimas prope litus, usque ad 200 m s.m., ex parte cum *Oxali magellanica* associans. *Fuegia media*: Puerto Yartou, Pico Nariz, in ripis humoso-arenosis rivulorum in reg. subalp. 400–550 m s.m., ex parte u.c. *Philonoti vaganti*. Est. Cameron, Puesto Medio; Sección Río Rusfin. Lago Linch, Cerro Chico. Lago Blanco. Lago Deseado. Est. Vicuña, Campo 13 B. Est. Los Cerros. Est. Carmen, Cerro Millaldeo. Ubique in paludibus fertilibus vel pratis uliginosis (etiam alpinis) et ripis rivulorum. Saepe muscis et aliis plantis immixtum, pr. e. cum *A. persquarroso*, *Brachythecio turgescenti*, *Drepanoclado revolventi*, *Breutelia chrysura*, *Schizeilemate Ranunculo*, *Junco stipulato* et *Nanodea muscosa* associat.

This species appears to be most general on fertile swamps of the contact area between the forest zone and the pampas. It should be noted, however, that I found the most luxuriant individuals in the pluvial forest zone (Bahia Plüschow). Both the former finds in Tierra del Fuego (DUSÉN and SKÖTTSBERG) are from the Alpine zone from Río Azopardo and Lago Fagnano. It is possible that the occurrence of the plant in the Alpine region of the Fuegian N. E. Cordillera, too, may be very extensive.

Anisothecium persquarrosus (Dus.) Broth.

Fuegia occ.: Fj. Finlandia, Bahia Kairamo, in ripa arenosa rivuli, c. g II; ibid., Brazo Aino, terra argilloso-arenosa glaciali, c. g II. immatura. Isla Dawson, Pto Valdez, multis locis ad rupes humidus gradibus exsurgentes, substrato turfoso- (humoso-) arenoso, ex majore parte muscis hepaticis immixtum, c. g II. nova et vet. *Fuegia media*: Pto Yartou, Pico Nariz in ripa humosa rivuli alpini, ca. 550 m s.m., c. g II. Est. Vicuña, Puesto 20, Cerro Fuentes, in margine fontis et rivuli alpini, 600–650 m s.m. Lago Linch, Cerro Chico, in paludibus apertis subalpinis, ad tumulos parvulos, ex parte u.c. *A. Paludella* et *Bartramia patenti* crescens. *Fuegia bor.*: Est. Esperanza, in declivibus humidis, graminosis, ad S versus apertis, ca. 250 m s.m., c. g II. Prov. de Mag.: Río de las

Minas (prope opp. Magallanes), in multis locis, interdum st cp ad terram humidam arenosam vel argilloso-arenosam in valle rivuli, c. g II. Ex eadem loco etiam a SKOTTSBERG (CARDOT et BROTHERUS 1923, p. 10) collectum. Penins. Brunswick, Pto San Isidro, in prato humido litoris; ibid., super rupes phylliticas, arena humida contextas, copiose c. g II nova et vet.

Anisothecium Hookeri (C. Müll.) Broth.

Fuegia o c c.: Fj. Finlandia, Brazo Aino, st cp, c. g II nova et vet. Fj. de Agostini, Bahia Groth-Hansen, u.c. *Blindia magellanica*, c. g II nova. *Fuegia* m e d i a: Pto Yartou, Pico Nariz, in ripis nonnullis rivulorum, ex parte u.c. *A. Paludella*. Est. Cameron, Puesto Medio. Lago Blanco, Río Blanco. Est. Vicuña, Puesto 20; ibid., Campo 13 B. Est. Carmen, Puesto Millaldeo, Río Claro. Lago Fagnano, Punta Pizarro. Sierra Carmen Silva. *Fuegia* o r.: Cabo San Pablo, Río Lainez. *Fuegia* b o r.: Est. Esperanza. P r o v. d e M a g.: Río de las Minas. — E maxima parte ad rivulos et ripas lacuum, sed saepe etiam in paludibus fertilibus Fuegiae mediae in associationibus \pm aequalibus, quibus *A. Paludella* libenter provenit.

Campylopus introflexus (Hedw.) Mitt.

Fuegia o c c.: Canal de Keats, Puerto Encanto, turfa adusta *Sphagni magellanici* super rupes sericiticas in litore, c. g II, st pc. Fj. Tristeza, ad rupes humidas horizontales prope litus, c. g II.

Campylopus perhorridus Dus.

Fuegia o c c.: Monte Buckland, terra humosa in silva subalpina *N. antarcticae*, in tumulis u.c. *Pernettya pumila* et *Empetro rubro* crescens, 400 m s.m.

Campylopus Saddleanus Besch.

Fuegia o c c.: Canal de Keats, Pto Encanto, super rupes turfosas u.c. *C. introflexo*, c. g II. Fj. Finlandia, ad rupes litoris prope Montem Nylandiam, in nonnullis locis, st pc–pcc, muscis hepaticis immixtus.

Campylopus Guaitecae Dus.

Fuegia occ.: Fj. Finlandia, Monte Nylandia, ad rupes litoris in intima vicinitate *Rhacomitrii rupestris*, st pc. *Fuegia* media: Lago Fagnano, Punta Pizarro, super rupes phylliticas ripae, *Cladoniis* quibusdam immixtus, pcc.

Campylopus hamatus Bartr. n.sp. — Fig. 13.

Dioicus, dense caespitosus, superne viridis, intus fuscescens, haud tomentosus. Caulis erectus, 3–4 cm altus, ramosus. Folia falcato-secunda, anguste lanceolata, longissime subulata, 8–10 mm longa; costa ad basin circa 200 μ lata, dorso sulcata, in subulam tenuem summo apice denticulatam producta; cellulis inferioribus linearibus, parietibus incrassatis, alaribus indistinctis, superioribus brevioribus, irregularibus subrhomboidalibus, parietibus incrassatis. Caetera ignota.

Dioicous? Robust plants, densely tufted, fulvous green above, brown below. Stems erect, 3–4 cm high, branched, neither radiculose nor tomentose. Leaves 8–10 mm long, falcate-secund, all pointing one way, hooked at the tips of the branches, from an oblong, concave base rapidly narrowed to a long, setaceous point composed entirely of the excurrent costa which is minutely but sharply toothed at the extreme apex; margin erect, entire; costa about 200 μ wide below, not sharply defined from the lamina, excurrent in a long, thick, flexuose, setaceous point, lightly grooved on the back, in cross section near the base showing a median row of small guide cells with stereid bands on both sides, the surface layer on the dorsal side slightly but not uniformly differentiated; alar cells none, basal cells linear, obscure, with thick yellowish

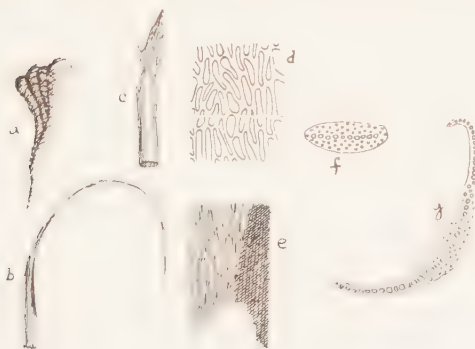


Fig. 13. *Campylopus hamatus* Bartr. n.sp. — a. plant $\frac{1}{2} \times$. b. leaf $4 \frac{1}{2} \times$. c. apex of leaf 80 \times . d. cells of upper part of leaf base 200 \times . e. one side of leaf base 80 \times . f. cross-section of subula 80 \times . g. cross-section of leaf near base 80 \times .

pellucid walls, very narrow toward the margins, becoming shorter, irregular, flexuose and very incrassate upwards. Fruit unknown.

Statio: *Fuegia occ.*: Monte Buckland, terra sabulosa prope rivulum in reg. alp. inferiori, 600 m s.m., pcc.

Without fruit the systematic position of this plant is uncertain. It has the gross appearance of *Dicranoloma nigricaula* and may prove to be a *Dicranoloma*, but the broad costa of the *Palinocraspis* type and the absence of any differentiated alar cells are in either case rather an unusual combination of characters. The thick walled basal cells are poorly defined, especially toward the margins, where they become very narrow and indistinct.

Dicranoweisia antarctica (C. Müll.) Par.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, fq ad saxa rupesque usque ad 350 m s.m., c. g II copiose; ibid., Bahia Plüschow et isthmus inter fjordum et Canal de Beagle. Monte Buckland, in reg. alp. inferiori, ad rupes humidus ripasque arenosas rivuli glacialis, c. g II. Fj. Finlandia, Brazo Aino, in plurimis locis ad saxa arenasque sericiticas, copiose c. g II, ex parte u.c. *Blindia curviseta* et *Breutelia chrysura*. *Fuegia media*: Pto Arturo, Campo Alto et Pto Yartou, Pico Nariz, ad saxa et rupes phylliticas, 450 et 700 m s.m., c. g II, pc.

f. *breviseta* Roiv. (nova). — *Seta 0.5–0.7 cm longa*. *Fuegia occ.*: Fj. Finlandia, Brazo Aino, ad rupes humidus sericiticas, cum *Rhacomitriis* et *Holodontio pumilo* immixta.

f. *falcatula* Roiv. (nova) — *Folia unilateraliter modeste falcata*. *Fuegia occ.*: Fj. Finlandia, Brazo Aino, arena sericitica ad rivulum glaciale, c. g II vet., non parce.

Dicranoweisia austrocrispula (C. Müll.) Par.

Fuegia media: Pto Yartou, Pico Nariz et alpes vicinae, in plurimis locis, 600–750 m s.m. Est. Vicuña, Cerro Pedro Grande; ibid., Campo 13 B; ibid., Puesto 20, Cerro Fuentes, reg. subalp. Est. Carmen, Cerro Millaldeo, 600–900 m, etiam in summis montibus, arena phyllitica u.c. *Bolace glebaria* et *Cerastio nervoso* crescens. Lago Fagnano, Punta Pizarro, u.c. *Campylopo Guaitecae*. Praecipue in reg. alp. Cordillerae Fuegiae mediae provenit, libenter substrato

arenoso-humoso ad saxa rupesque phylliticas, vel in fissuris parvulis vel ad parietes planas, crescit. Fere semper ep c. g II.

This species evidently avoids pluvial forest regions, as its adjacent *D. antarctica* avoids the drier tracts of Central Fuegia.

f. breviseta Card. *Fuegia media*: Est. Vicuña, Cerro Pedro Grande, in fissuris arena humosa contectis, pc.

Dicranoweisia breviseta Card.

Fuegia occ.: Monte Buckland, in locis arenoso-sabulosis super rupes porphyricas ad rivulum alpinum, 700 m s.m., c. g II. *Fuegia media*: Est. Vicuña, Puesto 20, Cerro Fuentes, in fissuris rupium phylliticarum nutrimento arenae argillosae usus, 600–700 m s.m., c. g II. Lago Deseado, in fissuris rupium alpinarum duobus locis 750–800 m s.m., pc, c. g II.

f. atrata (Card. et Broth.) *Fuegia occ.*: Monte Buckland, in ripa sabulosa inundata rivuli alpini, 600 m s.m.

Holodontium inerme (Mitt.) Broth.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, ad rupes humidias sericiticas, ex parte inundatas in plurimis locis prope lacusculum, ca. 300–350 m s.m., c. g II. Monte Buckland, in ripa phyllitico-arenosa rivuli, 500 m s.m., c. g II; *ibid.*, in ripa rivuli glacialis, 1,000 m s.m.

In both places I came across both normal forms with falcated leaves and orthophylle forms (mf. *orthophyllum*). The latter are apparently only simple local modifications, developing on growing sites subjected longer than usual to floods.

Holodontium pumilum (Mitt.) Broth.

Fuegia occ.: Fj. Finlandia, Brazo Aino, ad rupes sericiticas humidias ad rivulum glaciale, c. g II nova et vet. Fj. de Agostini, Bahia Groth-Hansen, super rupes phylliticas horizontales prope litus, ex parte u.c. *Rhacocarpo Humboldtii*, c. g II nova et vet. Monte Buckland, ad rupes in reg. alp. inferiori, 600 m s.m., ep c. g II. Fj. Martinez, Bahia Sarmiento et Bahia Plüschow, ad rupes sericiticas prope litus in multis locis, c. g II; prope Bahia Sarmiento usque ad 300–350 m s.m.

As CARDOT et BROTHÉRUS (1923, p. 14) have already pointed out, the *Blindia churuccana* Besch. and *Bl. humilis* C. Müll. are synonymous with *Holodontium pumilum*. The *Bl. auriculata* C. Müll. = *H. inerme*. — No 345 collected by DUSÉN on Isla Desolación and called by the name of *Dicranum pumilum* Mitt. is the *Bl. curviseta*.

Oncophorus luteo-virens Bartr. sp.n. — Fig. 14.

Lutescenti-viride, inferne fuscescens. Caulis ad 5 cm altus, parce radiculosus, ramosus. Folia sicca contorta, 3.0–3.5 mm longa, e basi brevi sat subito constricta, lanceolato-subulata, canaliculata; marginibus erectis, superne serrulatis caeterum crenulatis; costa valida, sub summo apice evanida; cellulae inferiores lineares, superne rotundato-quadratae, irregulares, laeves, incrassatae. Caetera ignota.

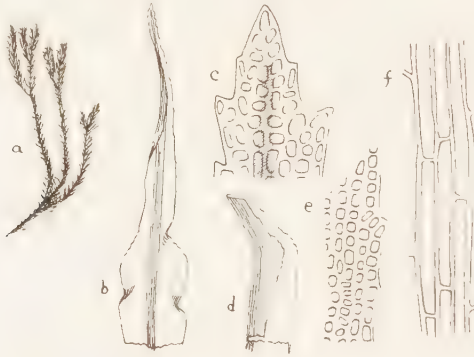


Fig. 14. *Oncophorus luteo-virens* Bartr. n.sp. — a. plant $\frac{1}{2} \times$. b. leaf $15 \times$, c. apex of leaf $200 \times$, d. base of leaf, lateral view $15 \times$, e. median leaf cells and margin $200 \times$, f. basal leaf cells $200 \times$.

Statio: Prov. de Magallanes, Isla Clarence, Pto Beubasin, in ripa arenosa temporaliter inundata ad rivulum; ibid., ad saxa in ripa lacusculi, pcc.

Robust, loosely tufted plants, dull yellowish green above, brown below. Stems erect, about 5 cm high, branched, sparingly radiculose. Leaves 3–3.5 mm long, widely spreading, somewhat flexuose and contorted when dry, from an erect, oblong, clasping base rather abruptly narrowed to a grooved lanceolate point; margins erect, slightly crenulate at the leaf shoulders, distantly denticulate above, toothed

at the extreme apex; costa narrow and indistinct at the insertion, broadening upward, about $80\ \mu$ wide near the middle of the leaf, ending just below the apex; basal cells linear, pellucid, 10–12 times as long as wide, gradually shorter toward the shoulders, upper cells rounded, quadrate, incrassate, smooth, irregular in size and shape, $7-10\ \mu$ in diameter. Inflorescence and fruit unknown.

The erect leaf margins will separate this plant from *O. virens* (Sw.) Brid. and the oblong leaf base not noticeably broadened above from *O. Wahlenbergii* Brid. From *O. fuegianus* Card. it is distinguished by the costa ending below the toothed apex.

Platyneuron laticostatum (Card.) Broth.

Fuegia media: Lago Blanco, Puesto de los Indios, ad rupes umbrosas horizontales in silva *Nothofagi pumilionis*. Est. Vicuña, Puesto 20, Cerro Fuentes, in plurimis locis in reg. alp. inferiori, ex parte cpp., ca. 550–650 m s.m., ibid., in reg. subalp., terra arenosa in silva pygmaea *N. pumilionis*; ibid., loco glareoso subsiccus in nemore *N. pumilionis*, ca. 300 m s.m., c. g II. Est. Carmen, Cerro Millaldeo, ubique in reg. alp. 550–800 m s.m. in locis apertis arenoso-sabulosis, plerumque \pm cp, praecipue prope limites silvae subalpinae et in umbra fruticum *Berberidis microphyllae* (reg. alp. inferior). *Fuegia or.*: Cabo San Pablo, in silva subsicca umbrosa *N. antarcticae*, super terram colonias puras et densas formans. *Fuegia bor.*: Est. Esperanza, in silva semiaperta *Maytenus magellanicae* et *Embothrii coccinei* ad terram subsiccam ex arena fina compositam pc creseens.

I have never seen this elegant moss »sur les troncs d'arbres renversés» (CARDOT 1901, p. 25), but on soil. It is a characteristic representative of mosses with centro-oriental spreading in the Isla Grande of Fuegia. The optimal appearance of it will doubtless be found in the lower parts of the north-east Cordillera (the region of *N. pumilio* forests). It seems to radiate a rarer occurrence from this centre to the north-east, perhaps as far as the forests can thrive.

Chorisodontium magellanicum (Card.) Bartr. n. comb.

Syn. *Dicranum magellanicum* Card., *Dicranum percompactum* Dus.

Fuegia occ.: Fj. Finlandia, Bahia Relander et Bahia Kairamo, fere omnibus paludibus apertis cum muscis hepaticis

gracillimis associans et tumulos angustos, ut semper, formans; *ibid.*, in duobus locis etiam super rupes humidias litoris. Canal de Keats, Bahia Queta, in paludibus apertis *Donatiae fascicularis*, *Gunnerae lobatae*, etc., grumos angustos et altos formans; *ibid.*, Pto Encanto, associatione *Donatiae* erigens. Isla Dawson, prope Bahia de las Islas, u.c. *Ch. aciphylo* in palude. *P r o v. d e M a g.*: Isla Clarence, Estero Staples et Pto Beaubasin, in omnibus paludibus apertis.

A characteristic plant for the open peat-bogs in the region of the Fuegian pluvial forests.

Mr. BARTRAM proves his new combination of this species as follows:

»Unfortunately none of Mr. ROIVAINEN's collections are in fruit. Until the sporophyte characters are available it is difficult to know just what disposition to make of this unique species. I have included it in *Chorisodontium* tentatively, but the broad costa, short pointed leaves, poorly defined alar cells and the small, rounded cells of the upper part of the leaf set it off very sharply from any of the allied species in this genus».

Chorisodontium lanigerum (Besch.) Broth.

Fuegia o.c.c.: Fj. Finlandia, Bahia Relander et Monte Nylandia, ad truncos arborum lignoque putrido in silvis humidis vel paludosis *N. antarcticae* et *N. betuloidis*, raro c. g II. Fj. Martinez, Bahia Sarmiento, ad rupes gradibus exsurgentes uliginosissimas, 3 locis, c. g II, non pc. Isla Dawson, prope Bahia de las Islas, in silva paludosa *N. betuloidis* ad lignum putridum crescens. *P r o v. d e M a g.*: Isla Clarence, Estero Staples et Pto Beaubasin, in omnibus paludibus apertis, vel in tumulis *Ch. magellanici* crescens vel tumulos angustos sibi proprios formans.

Chorisodontium Spegazzinii (C. Müll.) Roiv.

Caespites densissimi, supra virides, infra lutei-fulvescentes, nitidi, usque ad 10 cm alti, tomentosi. Caules graciles, strictiusculi, fragiles. Folia ca. 2.5–3.0 mm longa, ceterum descriptioni MÜLLERI (1885, p. 410) congruentia.

Seta 1.2–1.5 cm longa, erecta vel paulum flexuosa, lutea vel ad apicem versus rubescens. Theca indistincte curvata – breve subcylindrica, dorso modeste cumulato, ore paulum angustato, castaneo-fusca, 1.5–2.0

mm longa et 0.5 mm in diam. Peristomii dentes 16, rufescentes, ca. 0.3 mm longi, striati, in centro perforati, ad apicem versus fere in crura duo fissi, papillis crassis ornati. Operculum subito acuminatum, luteum, obliquulum, thecae longitudinis. Calyptra ca. 2.5 mm longa, obliqua, summam thecam solum tegens. Sporae 18–30 μ , fulvovirides, subtiliter papilloasae.

Fuegia occ.: Fj. Finlandia, Bahia Kairamo, super lignum putridum in silva paludosa *Nothofagi antarcticae*, c. g II. *Prov. de Mag.*: Isla Clarence, Pto Beaubasin, in caespitibus *Chorisodontii magellanic*i in palude aperta, ster.

A very nice and distinct species described by MÜLLER as *Dicranum* (*Campylopus*) *Spegazzinii* after specimens from Isla de los Estados and collected by SPEGAZZINI in 1882. The short upper leaf cells also distinguish it very clearly from its nearest relation, *Ch. lanigerum*.

Note. No. 199 in the collections of DUSÉN (Río Azopardo, ad truncum arboris, 1. III. 1896), called by him *Dicranum lanigerum*, is a good *Ch. Spegazzinii*. A little fragment of »*Dicranum blindiaceum* n. sp. Det. C. MÜLLER» (Viaggio CARACCIOLO: Fortune Bay, VI, 1882; dedit R. PIROTTA) in Herb. BROTHERUS is also in all probability the *C. Spegazzinii*.

Chorisodontium dicranellatum (Dus.) Roiv.

Fuegia media: Est. Cameron, Río Bueno, in silvis humidis paludosisque ad truncos arborum lignoque putrido c. g II crescens. Lago Linch, in silva *Nothofagi antarcticae*, ster.; Cerro Chico, in silva subalpina *N. pumilionis*, pc, ster. Lago Deseado, ad lignum putridum in silva subalpina 500–550 m s.m., c. g II. Est. Carmen, Cerro Millaldeo, 500–600 m s.m., c. g II.

mf. *alpinum* Roiv. (nova) — *Caespilibus densissimis, foliis brevibus, minus longe et minus anguste subulatis*.

Fuegia media: Lago Deseado, ad grumos paludis alpinae, 700 m s.m., c. g II; ibid., in silva aperta subalpina *N. pumilionis*, 550 m s.m., ster. Puerto Arturo, Campo Alto, ligno putrido in palude, 440 m s.m., ster.

Note. In the description by DUSÉN (1903 b, p. 74) it is mentioned that the leaves have »marginibus integerrimis vel apice solummodo serrulatis, nervo valido laevissimo». Already CARDOT (1908, p. 65) verified the fact that »Sur les échantillons du Río Aysen, la nervure

est scabre sur le dos». I have seen the original specimens collected by HATSCHER from *Fuegia australis*, Villarino. They are really not so serrulated at the apical part of the leaves as a rule, but the back is distinctly papillose. The dimensions of the papilles vary considerably in different habitats. They are largest and roughest in specimens collected from relatively dry and open places. That is to say that this species thrives best on a shadowed habitat.

A part of the *Campylopus perhorridus* Dus. in DUSÉN's collections must doubtless be identical with the *Ch. dicranellatum*.

Chorisodontium macropus (Kze) Broth. — Fig. 17, c.

Fuegia bor.: Estancia Esperanza, terra subsicca in silva aperta *Maytenus magellanicae* et *Embothrii coccinei*, c. g II.

Chorisodontium luridum Bartr. n.sp. — Fig. 15.

Dense caespitosum, olivaceo-viride, inferne fuscescens. Caulis



Fig. 15. *Chorisodontium luridum* Bartr. n.sp. — a. moist plant $\frac{1}{2} \times$, b. leaf $6 \times$, c. apex of leaf $200 \times$, d. basal leaf cells $200 \times$, e. one side of leaf base $80 \times$, f. cross-section from upper part of subula $80 \times$, g. cross-section from lower part of subula $80 \times$, h. cross-section near base of leaf $80 \times$.

circa 2 cm altus, haud tomentosus, simplex vel parce ramosus. Folia ad 4.5 mm longa, sicca erecta, flexuosa, madida patentia, ovato-lanceolata, canaliculata, sensim acuminata, apice solum denticulata; costa ad basin 80μ lata, longe excurrente; cellulis basilaribus linearibus, parieti-

bus lateralibus incrassatis sinuosis, alaribus haud diversis, superioribus partim bistratis subrhomboidalibus. Caetera ignota.

Statio: *Fuegia oce.*: Monte Buckland, ad saxa locisque sabuloso-arenosis phylliticis, in societate *Stereocaulontis glabri* et muscorum hepaticorum, prope nives eternas, 1,200 m s.m., pc.

Rather slender olive green or tawny plants, densely tufted, stems about 2 cm high, simple, neither radiculose nor tomentose. Leaves erect with flexuose points when dry, erect-spreading when moist, 4–4.5 mm long, gradually narrowed from an ovate, concave base to a lanceolate-subulate point; margins erect, entire except at the denticulate apex; costa about 80 μ wide below, excurrent in a thick, flat, setaceous point, in cross section near the base showing stereid bands on both sides of the median guide row with the surface layers slightly differentiated; basal cells linear with thickened, porose lateral walls without any differentiated cells at the basal angles, cells of the narrow lamina subrhomboidal, incrassate, smooth, in two layers except the marginal rows.

The absence of any differentiated alar cells at the basal leaf angles seems to separate this species clearly from any of its congeners.

Chorisodontium aciphyllum (Hook. fil. et Wils.) Broth.; emend. Roiv. — Fig. 17.

Muscus robustus caulibus ca. 5–15 cm altis, parce ramosis, copiose badio-tomentosis. Folia rigida, integerrima vel dentis paucis minoribus in summa apice ornata, dorso et omnino levia, erecta, vix secunda, luteoviridia vel fulva, plerumque 7–10 mm longa, longissime subulata, nervo ex basi ca. 0.40–0.45 mm lato; cellulae apicales nervi ca. 4–6 \times 20–35 μ ; cellulae apicales marginis ovatae, ca. 6–8 \times 9–12 μ ; cellulae prope basin in ordinibus 6–8 marginalibus aporosae, 6–9 \times 30–45 μ , in ordinibus magis centralibus plerumque distinctissime porosae, 12–15 \times 40–75 μ ; cellulae angulares basales breviter rectangulares vel subquadratae, fulvae.

Seta solitaria, 2.5–3.0 cm, primo aureo-rubella, deinde fusca. Theca paulum curvata, dorso distincte cumulata, opaca, brunnea-castanea, 0.7–0.8 \times 2.5 mm. Peristomii dentes minimi papilloso vel leves, in centro perforati, ad apicem versus fere divisi, rubri. Sporae minute papillosoe, fulvae, 20–30 μ .

Fuegia occ.: Fj. Martinez, Bahia Sarmiento et Bahia Plüschow; Keats Sound, Pto Queta; Fj. de Agostini, Pto Encanto et Bahia Groth-Hansen; Isla Dawson, Bahia de las Islas et Pto Valdez; Fj. Finlandia, Monte Nylandia, Brazo Aino, Bahia Relander, Bahia Kairamo. *Prov. de Mag.*: Isla Clarence, Estero Staples et Pto Beaubasin.

In his omnibus locis et sine dubio in tota regione silvarum pluvialium forma descriptioni identica frequentissime plerumque copiose crescit. Ad terram et lignum putridum nec non super rupes saxaque in silvis humidis et paludosis, tamen praecipue ad grumos *Empetri rubri*, super *Sphagna*, *Oreobolum obtusangulum*, etc., in paludibus apertis provenit, interdum in duro certamine cum variis muscis hepaticis.

This species has many local modifications. In its ability to grow rapidly in competition with other species it produces very narrow, sharp pointed shoots with very erect and singularly compressed leaves (mf. *erigens* Roiv.: *Fuegia occ.*, Fj. Martinez, Bahia Plüschow). In the most humid localities the leaf cells near the base have nothing but indistinct pores between the cellrooms. The pores are usually very beautifully formed. The variation of the form and dimension of the central apex cells is also rather large.

The *Dicranum rigens* Besch. cannot be anything but a modification with shorter apical cells. CARDOT (1908, p. 63), too, says: «Le *D. rigens* Besch. ne diffère de la plante de HOOKER que par sa nervure ordinairement un peu plus large, et par les cellules de la partie supérieure de la feuille plus courtes». For my part, I cannot find any noticeable differences in the leaf nerve of the different specimens. In studying the apex cells it is necessary to be careful not to confuse the dorsal or marginal cells with the central cells of the nerve. The former are always short and oval, while the latter, on the contrary, even if they are always \pm elongated, often vary even among the leaves of the same individual.

Chorisodontium sphagneticolum Roiv. n.sp. — Fig. 16 and 17.

Ex affinitate Ch. aciphylli, sed omnino minus robustum. Format colonias densas, usque ad 15 cm altas. Caules fere usque ad apicem fusco-tomentosi. Folia rigida, erigentia, flavo-viridia, integerrima vel in summa apice minute dentata,

levia, non secunda, plerumque 4-8 mm longa, ad modum longe subulata, nervo ex basi 0.3-0.4 mm lato; cellulae angulares subquadratae, fulvae.

Seta solitaria, 2.0-2.5 cm longa, fulva vel aureo-rubella. Theca paulum curvata, \pm cumulata, opaca, brunnea, vix 2 mm longa, 0.50-0.65 mm in diam. Peristomii dentes minute papillosoi, rufescentes, in centro perforati, indivisi. Sporae 18-22 μ , minute papillosoe, fulvae.

Distributio: *Fuegia media*: Río Bueno et Puesto Medio (Est. Cameron); Lago Blanco; Est. La Marina; Lago Fagnano, Río Claro. Semper in paludibus apertis *Sphagni magellanici*, vel super *Sphagna destructa*, vel inter muscos hepaticos crescens, c. g II, et \pm cp. Ut videtur, species characteristica paludium sphagnosarum in regione *Nothofagi pumilionis*.



Fig. 16. *Chorisodontium sphagnetorum* Roiv. n.sp. — a and b. leaves 12 \times , c. capsule 25 \times , d. lid 25 \times , e. cross-section of lower part and f. of apical part of leaf.

Chorisodontium leucopterum (C. Müll.) Roiv. — Fig. 17.

Caules robusti 5-25 cm alti, parce ramosi, fulvo-rufescenter tomentosi. Folia rigidissima, fulvoviridia, \pm distincte secunda, in parte apicali dentata, dorso marginibusque scabris, papillosoi, plerumque 7-12 mm longa, in apicem longissimam attenuata, nervo ex basi 0.4-0.5 mm lato; cellulae apicales nervi 6-8 \times 30-45 μ , marginales prope apicem ovatae, 6.0-7.5 \times ca. 12 μ ; cellulae prope basin in ordinibus 6-10 marginalibus vix porosae, ca. 6 \times 30-45 μ , in ordinibus magis centralibus distinctissime porosae, 9-12 \times 60-90 μ .

Seta solitaria, ca. 3.0-3.5 cm longa, plerumque primo lutea, deinde fuscescens vel rufescens. Theca cylindrica vel subcy-

lindrica, opaca, brunnea-castanea, 3.0-3.5 mm longa et ca. 0.7 mm in diam. Peristomii dentes angustis sed altis papillis instructi, in centro perforati, ad apicem versus distincte divisi, eminente trabeculati, oblique striati. Sporae minute papillosae, 25-30 μ , sordide virides vel fulvae.



Fig. 17. *Chorisodontium aciphyllum* (a and b), *Ch. macropus* (c), *Ch. sphagneticolum* (d), *Ch. leucopterum* (e and f), *Ch. dicranellatum* (g), *Ch. orthocomum* (h). $\frac{3}{4}$ of nat. size.

Fuegia occ.: Fj. Finlandia, Bahia Kairamo et Monte Nylandia. Fuegia media: fqq plerumque copiose in regione *Nothofagi pumilionis*, ubi in locis subhumidis, ad terram et lignum putrescentem crescit, usque ad reg. subalp. accedit, c. g II.

The *Dicranum scaberrimum* Dus. is, as CARDOT (1908, p. 63), too, has suggested, entirely identical with this species. In the description by MÜLLER (1885, pp. 407-408) there must be an error with reference to the peristomium. He says: »Peristomium denti-

bus in crura glabra fissis». All the numerous specimens I have seen, except those whose capsules were too old, were armed with papillous teeth.

This is, in my opinion, such a good species that I do not see the slightest reason for connecting it with *Ch. aciphyllum*. I have had an opportunity of examining the extensive materials of the Riksmuseum (Stockholm), Museum botanicum of Uppsala, Herb. BROTHERUS (Helsinki) and my own collections, and I am bound to say that there is a sufficiently good limit between the numerous modifications of the two species.

There is also a clear geobotanical difference in the distribution of both of them. The *Ch. aciphyllum* is a characteristic representative of the *Nothofagus betuloides* region, while the *Ch. leucopterum*, on the contrary, thrives almost exclusively in the *Nothofagus pumilio* region.

Of these two the *Ch. leucopterum* is undoubtedly richer in modifications. The *Dicranum tenuicuspdatum* C. Müll. is a modification caused by rapid and dense growth. I call it mf. *tenuicuspdatum*. It corresponds fully to the mf. *erigens* modification of the *Ch. aciphyllum*. In the Herb. BROTHERUS there is a specimen called by DUSÉN *Dicranum Hatscheri* n. sp. It is a typical mf. *tenuicuspdatum*. On the driest growing sites the leaves of the *Ch. leucopterum* curl more than normally on one side and the extreme form is a modification that I call mf. *falcatum*. It is reminiscent in its habitus of the large, beautifully curly-leaved *Dicranum majus*. The leaves of this mf. *falcatum*, too, are rougher than usual.

Note. — The *Dicranum atroviride* Card., collected by SKOTTSBERG from South Fuegia, is a modification (mf. *atroviride* Roiv.) of *Ch. leucopterum* grown in an inundated locality.

Chorisodontium orthocomum (Besch.) Roiv. — Fig. 17.

Ex maxima affinitate Ch. leucopteri. Caules plerumque minus dense aggregati, 5–10 cm alti, ± parce vel sat copiose tomentosi. Folia rigida, erecta — subsquarrosa, fulvo-viridia, subsecunda — fere omnilateralia, in parte apicali distincte dentata, dorso marginibusque scabris, papillosis, 10–15 mm longa, angustissime longe subulata, nervo ex basi 0.5–0.6

mm lato; cellulae prope basin in ordinibus magis centralibus ca. $12 \times 60-105 \mu$, distinctissime porosae.

Seta solitaria, 3.0–3.5 cm longa, aureo-rubella. *Theca castanea subcylindrica*, ca. 2.5 cm longa, 0.6–0.7 cm in diam. *Peristomii dentes alte papilloși*, eminente trabeculati. *Sporae* 20–30 μ .

Fuegia occ.: Fj. Martinez, Bahia Sarmiento et Bahia Plüschow, in silvis *Nothofagi betuloidis*; Fj. Finlandia, Monte Nylandia, in silva *N. betuloidis* et *N. pumilionis*; Isla Dawson, Bahia de las Islas. *Prov. de Mag.*: Isla Clarence, Pto Beaubasin. *Muscus silvaticus* regionis *N. betuloidis*, locis humidis u.c. muscis hepaticis crescens, sat raro c. g II a. 1929.

This species should, possibly, be connected with the range of a form belonging to *Ch. leucopterum*. However, the comparative materials for settling the matter for certain were so small that it seemed more correct to retain BESCHERELLE's species (Comp. BESCHERELLE 1889, p. 263). The colour mentioned by BESCHERELLE (1889, p. 263) »atro-virescentes», »vert noirâtre», is exceptional for this species.

Chorisodontium Nordenskjöldii (Card.) Roiv.

Fuegia media: Lago Deseado, in prato aperto regionis alpinae inferioris, in ripa rivuli subhumida u.c. *Pernettya pumila* crescens, ster., st pc, ca. 600 m s.m. Puerto Yartou, Pico Nariz, in prato humido alpino ca. 550 m s.m., ster.

The former specimen especially is very like the original specimens of SKOTTSBERG (CARDOT 1908, p. 265). It seems to me impossible to say, whether this species is a good one, all the more so as the material is sparse, besides its being sterile. It is not at all unlikely that the *Ch. Nordenskjöldii* may be an extreme alpine form of *Ch. leucopterum*.

Dicranoloma australe (Besch.) Par.

Fuegia occ.: Fj. Finlandia, Monte Nylandia, in silva humida *Nothofagi betuloidis* et *N. pumilionis* u.c. *D. robusto*, ibid., Bahia Kairamo, in silva *N. pumilionis*, ad lignum putridum. *Fuegia media*: Est. Cameron, Río Bueno, in silva paludosa *N. antarcticae*. *Prov. de Mag.*: Penins. Brunswick, Pto San Isidro, loco humido et umbroso.

This species of BESCHERELLE (1889, p. 260) may possibly be nothing more than forms of *Dicranoloma robustum*.

Note. — According to my view the species *Dicranoloma perremotifolium* (Dus.) Par., discovered by DUSÉN, is a good species, the geographical distribution of which also differs from that of the *Dicranoloma australe* or *D. robustum*.

Dicranoloma Billardierii (Schwaegr.) Par.

Fuegia occ.: Keats Sound, Pto Queta, ad lignum putridum in silva paludosa *Nothofagi betuloidis* u.c. *Dicranolomate robusto* et *Chorisodontio aciphylo* crescens, pcc, ster. Prov. de Mag., Isla Clarence, ad truncos arborum *Nothofagi betuloidis*, ex parte inter *Philesium buxifoliam* et *Prionetem myrsinitem* crescens, libenter etiam ad lignum putridum terraque humida u.c. muscis hepaticis proveniens.

A characteristic representative of the extreme pluvial forests. It is already much rarer in the region of Fuegia than in West-Patagonia.

Note. — If the *Dicranum truncorum* Schimp. collected from Prov. Valdivia near Arique (?) in Herb. Mus. Bot. Upsaliense is typical, this species cannot be identical with *D. Billardierii* (CARDOT 1908, p. 71). The position probably is that *Dicranoloma truncorum* (Schimp.) Par. (PARIS 1904, p. 31), which is a good species, takes the place, at any rate in the Valdivian region, of *D. Billardierii* or occurs side by side with it.

N:o 94 in the collections of W. LECHLER named *Dicranum pungens* (Ins. Maclov., Port William Stanley) is identical with *D. Billardierii*.

Dicranoloma Harioti (C. Müll.) Par.

This plant must be one of the most variable Fuegian mosses. Possibly on the basis of material containing extensive and sufficiently fertile specimens it could be shown that it is a question of several hereditary forms, if not species. On the basis of the materials at my disposal I have formed the impression that this moss in any case presents very many modifications.

Individuals similar to MÜLLER's (1885, p. 408) described specimen are comparatively rare. Such black-brown, dense-leaved and

delicate-leaved forms evidently develop at times in inundated places in which the proportion of minerals is relatively large. I collected such modifications (mf. *nigrescens* Roiv.) in the following places: Fuegia occ.: Fj. Martinez, Bahia Sarmiento. Fuegia media: Lago Linch, Cerro Chico, 400 m s.m.

DUSÉN's specimen N:o 46 (Molyneux Sound, Patagonia occ.) also belongs to this modification.

The forms, according to which DUSÉN (1905, p. 33) determined his *Leucoloma fuegianum* var. *laxum*, are, on the contrary, very general on the peat-bogs of the pluvial forest region of Tierra del Fuego. His coll. N:o 274 *Leucoloma alboalare* from Isla Desolación, Pto. Angosto, is identical with this form. These forms are golden-brown, the leaves are generally very falcated and the tips almost entire, just as in DUSÉN's illustration. They possess the further characteristic that colonies of them are very common on the open peat-bogs of the pluvial forest region and are fairly in association with many hepatics, *Caltha appendiculata*, *Tribeles australis*, *Donatia fascicularis*, *Myrteola nummularia* etc.

In the best conditions of humidity, in association with *Caltha appendiculata*, for instance, its leaves are beautifully falcated. On drier soil, together with *Donatia* or *Astelia pumila*, it grows in less density and has more crisped or flexuose leaves. On a very wet habitat, on the margin of a *Sphagnum falciculatum*-association, for instance, the stems are not so densely foliated as a rule, the leaves grow more upright, their apical part is shorter and the colour changes to brown.

It seems possible to call the forms referred to *D. Harioti* f. *laxum* (Dus.) Roiv. If we wish to give names, too, to the most important modifications of this form, we may call the modification first mentioned, growing in the best conditions of humidity, mf. *falcatum*, the second — mf. *crispatum*, and the last — the modification of the wettest habitats — mf. *subfalcatum*. DUSÉN's original specimens of his *Leucoloma fuegianum* from Río Azopardo (DUSÉN 1905, p. 32) are included in this modification.

As I mentioned before, the *D. Harioti* f. *laxum* is very frequent in the region of pluvial forests. I found it in all the places that I stopped at on my journey.

The distribution of the forms or modifications of *D. Harioti* is

not confined to the regions of pluvial forest, but extends as far as the limit of the pampas. On definitely typical open peat-bogs there and in the *N. pumilio* region I found forms that closely resemble the mf. *subfalcatum* referred to above. It is impossible as yet to determine the systematical value of these forms exactly. For the present I use the name *D. Harioti* f. *patens* Roiv. for them and give the following short description of them:

Coloniae densiusculae, virides — pallidovirides vel fulvovirides usque ad 15 cm altae. Caulis simplex vel parcissime divisus, haud rhizoideus, erectus, sat sparsim foliatus apice vix subfalcatus. Folia patentia, 6–8 mm longa, basi ca. 1 mm lata, apice multo breviori latiorique quam apud f. laxum; cellulae suprabasales parietibus minus incrassatis; margines involuti.

Fuegia media: Est. Cameron, Puesto Medio, locis aquosis paludium subfertilium et fertilium apertarum in societate *Calliergonis sarmentosi*, *Brachythecii turgentis*, *Colobanthi crassifolii*, *Skottsbergiae paradoxae*, etc. Est. Vicuña, Campo 13 B, in palude aperta, ex parte u.c. *Calliergone sarmentoso* et *Mnio* cfr *magellanico*.

I found *D. Harioti* with capsules only in one place, the head of Fjordo Martinez. The capsules are slightly bent on one side, subovate, 1.8–2.0 mm long and 0.8–0.9 mm thick, brown. The spores are 18–25 μ , yellowish-green, smooth.

Note. — Mr BARTRAM, who has seen my specimens, is of much the same opinion as myself. He writes as follows:

»If DUSÉN's N:o 46 from Molyneux Sound is typical of *D. Harioti* I can see nothing in *D. fuegianum* (Dus.) but a slender form of this species, paler in color with less turgid stems and the leaves rather less abruptly narrowed above. None of these characters seem to be constant or clearly diagnostic. The characters in the basal cells used to distinguish *D. Skottsbergii* (Card.) Broth. are quite intangible and the structure is far from constant so that this species can also probably be included in the synonymy of *D. Harioti*».

According to BARTRAM's opinion, therefore, *Dicranoloma Skottsbergii* (CARDOT 1908, pp. 68–69) may possibly also belong to the circle of forms of the *D. Harioti*. The question can probably only be decided, when forms including *D. Skottsbergii* with capsules are

discovered. I have a specimen similar to *D. Skottsbergii* from Fuegia occ., Fj. Martinez, Bahia Plüschow.

It seems impossible to me to distinguish the *D. Harioti* from the *D. austrogeorgicum* (C. Müll.) Broth. An orthophyll specimen No. 267 coll. by SKOTTSBERG from Cumberland Bay, South Georgia, is extraordinarily near to my f. *patens*.

The *Dicranoloma falklandicum* (Card.) Broth., on the other hand, is certainly a good species.

D. Kerguelense (C. Müll.) Broth., which is identical with *D. arc-toaeoides* (C. Müll.) Broth., is more closely related to *D. Harioti*.

Dicranoloma imponens (Mont.) Par.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, in locis uliginosis super rupes; ibid., Bahia Plüschow, in paludibus apertis, ex parte una cum *Dicranolomate Harioti*, aliquando etiam cum *Myrteola nummularia* et *Gaultheria serpyllifolia* associans. Prov. de Mag.: Isla Clarence, Estero Staples, in paludibus apertis et silvaticis *Nothofagi betuloidis*, inter reliquias putrescentes *Myrteolae nummulariae* et *Gaultheriae serpyllifoliae*, una cum muscis hepaticis associans, sp – st pc; ibid., Pto Beubasin, loco aperto super rupes uliginosas, pc.

D. imponens is a representative of the extreme pluvial regions. Ordinarily it is loosely tufted, but sometimes forms dense groups with condensate leaved stems (mf. *condensatum* Roiv.: Fuegia occ., Fj. Martinez, Bahia Sarmiento, super rupes humidis, sp – st pc, 200 m s.m.). This modification may be equivalent to the humid rock-modifications of some other mosses, for instance, to the »var. *orthophyllum*» of *Dicranum scoparium* in the northern hemisphere.

Dicranoloma nigricaulis (Angstr.) Par.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento, in silvis paludosis ad terram et ad lignum putridum, etiam ad rupes humidis usque ad 300 m s.m. Fj. de Agostini, Bahia Groth-Hansen. ad terram in silva *Nothofagi antarcticae* inter *Asplenium magellanicum*, pc; ibid., Bahia Plüschow, ad saxa rupesque sericiticas; ibid., in silvis nonnullis *N. betuloidis*, in terra umbrosa et ligno putrido inter *Hymenophylla* crescens. Fj. Finlandia, Bahia Kairamo, in silva

humida *N. pumilionis*. Isla Dawson, Pto Valdez et Bahia de las Islas, fq in silvis *N. betuloidis* et *N. antarcticae* in terra inter muscos hepaticos, nec non in ripis arenosis humidis rivulorum. *Fuegia media*: Sine dubio in omnibus silvis umbrosis humidisque *N. betuloidis* et ex maxima parte etiam in *Nothofagetis pumilionis* fq-fqq. In his regionibus exemplares optime evolutos vidi. Ibi etiam in ripis humidis, nonnunquam in marginibus paludium *Nothofagetis antarcticae* tectis provenit. *Fuegia or.*: Cabo San Pablo, in silva *N. antarcticae*. *Fuegia bor.*: Est. Esperanza, prope ripam rivuli in silvula *Embothrii coccinei*, pc. *Prov. de Mag.*: Magallanes, Río de las Minas, in umbrosa ripa. Penins. Brunswick, Pto San Isidro, in silva paludosa *N. betuloidis*. Isla Clarence, Estero Staples, in ripa lapidosa lacus Lago Laina; *ibid.*, Pto Beaubasin, in multis locis, praecipue in ripis arenoso-sabulosis rivulorum, et in apertis et in umbrosis.

As DUSÉN (1905, p. 29) has already explained, this species flourishes »im Westen der Magellansländer». Its best localities are undoubtedly in the borderlands of the *Nothofagus pumilio* and *N. betuloides* forests. There it grows more luxuriantly than in the extreme pluvial zone, in which it also suddenly becomes rare.

Note. DUSÉN's (1905, p. 31) *Leucoloma peruncinatum* is, in my opinion, entirely identical with *Dicranoloma nigricaula*. The differences mentioned by DUSÉN: »bedeutend dichtere Rasenbildung und dichtere Verzweigung» vary in this species appreciably according to the humidity of the habitats, as well as the curvature of the leaves. The apical parts of the leaves are denticulated more or less in the same way as in the case of *D. nigricaula*. Smoothly curved leaves do not occur at all in DUSÉN's specimens (N:o 69, Punta Arenas), although he mentions them. The basal cells are also hyaline in some leaves of his specimens.

On the other hand DUSÉN's (1905, p. 30) *Leucoloma capillare* (= *Dicranoloma c.* (Dus.) Broth.) seems to be a good species. It is even possible that DUSÉN, in his description of *Leucoloma peruncinatum*, confused it with *D. capillare*, the leaves of which are much more plentifully denticulated than the leaves of *D. nigricaula*. This seems probable, seeing that some of DUSÉN's specimens from West-Patagonia, which he classed as *D. nigricaula*, belong to *D. capillare*. Likewise his *Leucoloma nigricaula* var. *gracile* (N:o 896, Patagonia,

1897) and a near orthophyll specimen called *L. nigricaula* (N:o 442, Rio Aysen) are identical with *D. capillare*.

I have collected the *D. nigricaula* var. *flexuosulum* (Dus.) Bartr. n. comb. in the following localities: Fuegia occ.: Fj. de Agostini, Bahia Groth-Hansen, terra umbrosa in silva *N. antarcticae*, pc. Prov. de Mag.: Isla Clarence, Estero Staples, ad rupes humiditas in silva *N. betuloidis*. — I cannot say for certain, whether this form is a pathologic modification caused by excessive humidity or, perhaps, actually a hereditary form.

Dicranoloma Mülleri (Dus.) Roiv.

Syn. *Leucoloma Mülleri* Dus. (DUSÉN 1905, p. 33, 34). Prov. de Mag.: Penins. Brunswick, Pto San Isidro, ster.

On the basis of my comparison of the specimens I cannot agree at all with CARDOT's (1908, p. 70) opinion, according to which the species is identical with *Dicranoloma setosum* Par. *D. setosum* is of larger growth and longer leaved and its leaf cells, especially from the central part of the leafbed, are clearly shorter than those of the species illustrated by DUSÉN at the time, which therefore seems to be a good species. The var. *strictifolium* distinguished by DUSÉN (1905, p. 34), specimens of which I have not seen, may possibly only be a modification.

This species has frequently been classed as *D. capillifolium* Broth. which differs, however, through its unfragile leaves. Of *D. capillifolium* I have not seen any specimens at all from the region of Tierra del Fuego in any collections, nor did I find any there myself. The same is the case in regard to the actual *D. setosum*.

Note. --- N:o 193 *Dicranum capillifolium*, Isla Dawson, collected on 25th February 1908 by SKOTTSBERG; N:o 195 *D. capillif.*, Patag. austr., Otway, coll. on 14th April 1908 by HALLE and SKOTTSBERG; *Dicranoloma setosum*, Fretum magellanicum, coll. by N. J. ANDERSSON; all these collections belong to *Dicranoloma Mülleri*.

Dicranoloma robustum (Hook. fil. et Wils.) Par.

Fuegia occ.: Fj. Martinez, Bahia Sarmiento; ibid., Bahia Plüschow; ibid., in isthmo inter fjordum et Canal de Beagle; Keats Sound, Bahia Queta; Fj. de Agostini, Pto Encanto et Bahia Groth-

Hansen; Fj. Tristeza; Isla Dawson, Pto Valdez et Bahia de las Islas; Fj. Finlandia, Monte Nylandia, Brazo Aino, Fj. Relander et Bahia Kairamo. *Fuegia media*: Pto Arturo; Olgyta; Pto Yartou. *Prov. de Mag.*: Pto San Isidro (Penins. Brunswick); Isla Clarence, Estero Staples, Lago Laina et Pto Beaubasin.

In tota regione *Nothofagi betuloidis* fqq et $\frac{1}{2}$ cp, plerumque c. g II. Libentissime in silvis humidis vel paludosis, interdum terra humoso-arenosa inter folia et ramos putrescentes, interdum ad saxa rupesque humidis vel ad lignum putridum, aliquando etiam in turfosis ripis rivulorum caespitibusque paludium provenit; modificationes numerosas format.

One such modification is obviously the var. *giganteum* by CARDOT (1908, p. 67). In very humid, but otherwise favourable localities the species regularly develops to a larger size and has less falcated leaves. It is not at all out of the ordinary that the leaves in such a locality should attain a length of 2 cm. I can therefore not see any reason for calling these largest forms anything but mf. *giganteum*. With increased humidity the growth also develops perfectly orthophyll modifications. I have collected such a mf. *orthophyllum* Roiv. (*Fuegia occ.*: Fj. Martinez, Bahia Plüschow, on the bank of a small river).

Note. — The var. *laguncolum* (Dus.) (DUSÉN 1905, p. 24) is also a similar modification, though smaller in size and denser and broader leaved (according to the specimens N:o 307 collected by DUSÉN, Isla Desolación, Puerto Angosto) than my mf. *orthophyllum*; but DUSÉN's plant is not a modification of *D. robustum*, it is a modification of *D. subimponens* (see p. 50).

Dicranoloma subimponens (Card.) Broth.

Fuegia occ.: Fj. Martinez, in isthmo inter fjordum et Canal de Beagle, in locis paludosis aquosis super rupes nudas, ca. 100–200 m s.m., cp—st cp frequenter crescit. Fj. de Agostini, Bahia Groth-Hansen, ad terram lapidosam in locis uliginosis, inter frutices *Pernettyae mucronatae*, tamquam ad saxa prope litus, invenit. Isla Dawson, Pto Valdez, in silva paludosa *Nothofagi antarcticae* prope litus; ibid., in ripa humidissima fluminis; ibid., in *Marsippospermato* in silva paludosa *N. betuloidis*; ibid., Bahia de las Islas. *Prov. de Mag.*: Isla Clarence, in paludibus apertis prope portum Pto

Beaubasin, nec non ad rupes uliginosas silvisque paludosis, semper cum muscis \pm numerosis hepaticis mixtum st ep inveniens; *ibid.*, Estero Staples, in locis aequalibus.

As has been mentioned above in connection with *D. robustum*, DUSÉN's (1905, p. 24) *D. robustum* var. *lagunicolum* (Isla Desolación, Pto. Angosto; N:o 307) belongs to this species. DUSÉN's *Dicranum turgidissimum* (Coll. N:o 303) in Herb. BROTHERUS is also entirely identical and taken from the same place.

BIBLIOGRAPHY.

- AUER, V., 1934, The Finnish Expedition to Tierra del Fuego in 1928-1929. Helsinki.
- BESCHERELLE, E., 1889, Mission scientifique du Cap Horn 1882-1883, Tom. V, Botanique. Mousses. Paris.
- BROTHERUS, V. F., 1924 a, Andreaeaceae, in: Die natürlichen Pflanzenfamilien, 2. Aufl., 10. Bd., 1. Hälfte (edited by A. ENGLER), p. 129-131. Leipzig.
- »— 1924 b, Bryales. Spezieller Teil, *ibid.*, p. 143-214 (Fissidentaceae-Dicranaceae). Leipzig.
- CARDOT, J., 1901, Mousses et coup d'oeil sur la flore bryologique des Terres Magellaniques. Résultats du Voyage du S. Y. Belgica en 1897-1898-1899. Rapports scientifiques. Botanique. Anvers.
- »— 1908, La Flore bryologique des Terres Magellaniques, de la Géorgie du Sud et de l'Antarctide. Wissenschaftliche Ergebnisse der schwedischen Südpolar-Expedition 1901-1903, Bd. IV, Lieferung 8. Stockholm.
- »— et BROTHERUS, V. F., 1923, Botanische Ergebnisse der schwedischen Expedition nach Patagonia und dem Feurlande 1907-1909. X. Les Mousses. Kungl. sv. Vetenskapsakad. Handl., Bd. 63, No 10. Stockholm.
- DUSÉN, P., 1903 a, Patagonian and Fuegian mosses. Reports of the Princeton University Expeditions to Patagonia 1896-1899, edited by W. B. SCOTT, Vol. VIII, Part III, p. 63-104. Stuttgart.
- »— 1903 b, Beiträge zur Bryologie der Magellansländer, Westpatagonien und Südchile. 1. Arkiv för Botanik, Bd. 1., p. 441-465. Stockholm.
- »— 1905, *Id.* 2. *Ibid.*, Bd. 4, Nos 1 and 13. Uppsala & Stockholm.
- HOOKE, J. D., 1845, The cryptogamic botany of the antarctic voyage. London.
- MITTEN, G., 1869, Musci austroamerici. Journ. Linn. Soc. Botany, Vol. XII. London.
- MÜLLER, C., 1849, Synopsis muscorum frondosorum, Pars I. Berlin.
- »— 1885, Bryologia Fuegiana. Flora, Bd. 68 (n. R. Bd. 43) p. 391-429.
- PARIS, E. G., 1904, Index Bryologicus, Editio II. Paris.
- PAUL, H., 1924, Sphagnaceae, in: Die natürlichen Pflanzenfamilien, 2. Aufl., 10. Bd., 1. Hälfte (edited by A. ENGLER) p. 105-125. Leipzig.
- ROIVAINEN, H., 1934, Observaciones sobre la vegetación en los alrededores de Termas de Chillán. Annales Bot. Soc. Zool. - Bot. Fenn. Vanamo, Tom. 5, No 4. Helsinki.
- ROTH, G., 1911, Die aussereuropäischen Laubmoose, Bd. I. Dresden.
- WARNSTORF, C., 1911, Sphagnales-Sphagnaceae, in: Das Pflanzenreich (edited by A. ENGLER), Heft. 51. Leipzig.

INDEX OF THE SPECIES, VARIATIONS, FORMS AND MODIFICATIONS.

(The synonyms are not italicized).

	Page
<i>Acroschisma Wilsonii</i> (Hook. fil. et Wils.) Jaeg.	13
<i>Andreaea acutifolia</i> Hook. fil. et Wils.	14
<i>alpina</i> Turn.	14
<i>brevifolia</i> Dus.	15
<i>depressinervis</i> Card.	17
<i>Gunnii</i> Card.	17
<i>grimmiioides</i> Dus.	14
<i>lanceolata</i> Dus.	15
<i>latinervis</i> Bartr.	15
<i>leiophylla</i> Card.	13
<i>loricata</i> Dus.	15
<i>mutabilis</i> Hook. fil. et Wils.	14
<i>Naumanni</i> C. Müll.	15
<i>opaca</i> Card.	17
<i>pachyphylla</i> (C. Müll.) Broth.	17
<i>parallela</i> C. Müll.	15
<i>pseudoalpina</i> C. Müll.	15
<i>purpurascens</i> Dus.	17
<i>regularis</i> C. Müll.	17
<i>remotifolia</i> Dus.	17
<i>ruficaulis</i> Dus.	15
<i>squamata</i> C. Müll.	15
<i>subappendiculata</i> Dus.	14
<i>subulata</i> Hary.	17
<i>verruculosa</i> Card.	13
<i>Willii</i> C. Müll.	17
<i>Ansotherium Paludella</i> (Besch.) Broth.	27
<i>persquarrosom</i> (Dus.) Broth.	27
<i>Hookeri</i> (C. Müll.) Broth.	28
<i>Blindia auriculata</i> C. Müll.	32
<i>churuccana</i> Besch.	32
<i>consimilis</i> Card.	26

<i>curviseta</i> Mitt.	25
<i>globularis</i> Dus.	26
<i>humilis</i> C. Mull.	32
<i>inundata</i> Card.	25
<i>magellanica</i> Schimp.	25
<i>microdieranum</i> Dus.	26
<i>praticola</i> Card. et Borth.	25
<i>pseudorobusta</i> Dus.	26
<i>robusta</i> Hampe	26
<i>tenusifolia</i> (Hook. fil. et Wils.) Mitt.	26
<i>Campylopus Guaiterae</i> Dus.	29
<i>hamatus</i> Bartr.	29
<i>introflexus</i> (Hedw.) Mitt.	28
<i>perhorridus</i> Dus.	28
<i>Saddleanus</i> Besch.	28
<i>Ceratodon purpureus</i> Brid.	21
<i>Chorisodontium aciphyllum</i> (Hook. fil. et Wils.) Broth.	37
mf. <i>origens</i> Roiv.	38
<i>dicranellatum</i> (Dus.) Roiv.	35
mf. <i>alpinum</i> Roiv.	35
<i>tangerum</i> (Besch.) Broth.	34
<i>leucopterum</i> (C. Mull.) Roiv.	39
mf. <i>atroviride</i> Roiv.	41
mf. <i>falcatum</i> Roiv.	41
mf. <i>tenuicuspdatum</i> Roiv.	41
<i>luridum</i> Bartr.	36
<i>macropus</i> (Kze.) Broth.	36
<i>magellanicum</i> (Card.) Bartr.	33
<i>Nordenskjoldii</i> (Card.) Roiv.	42
<i>orthocnatum</i> (Besch.) Roiv.	41
<i>Spegazzinii</i> (C. Mull.) Roiv.	34
<i>sphagnetorum</i> Roiv.	38
<i>Dicranoloma arctoaeoides</i> (C. Mull.) Broth.	46
<i>australe</i> (Besch.) Par.	42
<i>austrogeorgicum</i> (C. Mull.) Broth.	46
<i>Billardierni</i> (Schwaegr.) Par.	43
<i>capillare</i> (Dus.) Broth.	47
<i>capillifolium</i> Broth.	48
<i>falklandicum</i> (Card.) Broth.	46
<i>Harti</i> (C. Mull.) Par.	43
mf. <i>nigrescens</i> Roiv.	44
f. <i>laxum</i> (Dus.) Roiv.	44
mf. <i>crispatum</i> Roiv.	44
mf. <i>falcatum</i> Roiv.	44
mf. <i>subfalcatum</i> Roiv.	44
f. <i>patens</i> Roiv.	45

<i>imponens</i> (Mont.) Par.	46
mf. <i>condensatum</i> Roiv.	46
<i>Kerguelense</i> (C. Müll.) Broth.	46
<i>Mülleri</i> (Dus.) Roiv.	48
<i>negricaulis</i> (Angstr.) Par.	46
var. <i>fleuosulum</i> (Dus.) Bartr.	48
<i>perremifolium</i> (Dus.) Par.	43
<i>robustum</i> (Hook. fil. et Wils.) Par.	48
var. <i>lagunicolum</i> Dus.	49
mf. <i>giganteum</i> (Card.) Roiv.	49
mf. <i>orthophyllum</i> Roiv.	49
<i>setosum</i> Par.	48
<i>Skottsbergii</i> (Card.) Broth.	45
<i>subimponens</i> (Card.) Broth.	49
mf. <i>lagunicolum</i> (Dus.) Roiv.	49
<i>truncorum</i> (Schimp.) Par.	43
<i>Dicranoweisia antarctica</i> (C. Müll.) Par.	30
f. <i>breviseta</i> Roiv.	30
f. <i>falcatula</i> Roiv.	30
<i>austrorispula</i> (C. Müll.) Par.	30
f. <i>breviseta</i> Card.	31
<i>breviseta</i> Card.	31
f. <i>atrata</i> (Card. et Broth.) Roiv.	31
<i>Dicranum atroviride</i> Card.	41
blindiaceum C. Müll.	35
capillifolium	48
gracilescens Dus.	26
Hatscheri Dus.	41
magellanicum Card.	33
percompactum Dus.	33
pumilum Mitt.	32
pungens	43
rigens Besch.	38
scaberrimum Dus.	40
Spegazzinii C. Müll.	35
tenuicuspdatum C. Müll.	41
truncorum Schimp.	43
turgidissimum Dus.	50
<i>Distichium capillaceum</i> (Hedw.) Bryol. eur.	21
f. <i>brevifolium</i> (Bryol. eur.) Roiv.	21
f. <i>elongatum</i> Roiv.	22
f. <i>subquadratum</i> Roiv.	22
<i>Ditrichum conicum</i> (Mont.) Par.	18
var. <i>glaciale</i> Card. et Broth.	18
<i>Hallei</i> Card. et Broth.	19

<i>Hookeri</i> (C. Müll.) Hampe	18
mf. <i>falcatum</i> Roiv.	18
mf. <i>orthophyllum</i> Roiv.	18
<i>longisetum</i> (Lor.) Hampe	18
<i>Roivainenii</i> Bartr.	19
<i>stenostomum</i> Card.	19
<i>Fissidens rigidulus</i> Hook. fil. et Wils.	18
<i>Holodontium inerme</i> (Mitt.) Broth.	31
mf. <i>orthophyllum</i> Roiv.	31
<i>pumilum</i> (Mitt.) Broth.	31
<i>Leucoloma alboalare</i> Dus.	44
<i>fuegianum</i> Dus.	44
var. <i>laxum</i> Dus.	44
<i>capillare</i> Dus.	47
<i>Mülleri</i> Dus.	48
var. <i>strictifolium</i> Dus.	48
<i>nigricaula</i> (Ångstr.)	47
var. <i>gracile</i> Dus.	47
<i>peruncinatum</i> Dus.	47
<i>Neuroloma fuegianum</i> Card.	17
<i>Oncophorus fuegianus</i> Card.	33
<i>luteo-virens</i> Bartr.	32
<i>Platyneuron laticostatum</i> (Card.) Broth.	33
<i>Pseudodistichium austrogeorgicum</i> Card.	22
var. <i>longifolium</i> Broth.	23
<i>fuegianum</i> Roiv.	24
<i>Skottsbergia paradoxa</i> Card.	24
<i>Sphagnum cuspidatum</i> var. <i>falcatum</i> Dus.	4
var. <i>submersum</i> Dus.	4
<i>dissimile</i> Roiv.	8
<i>duseniioides</i> Roiv.	9
<i>falcatulum</i> Besch.	3
mf. <i>inundatum</i> Roiv.	3
mf. <i>simplex</i> Roiv.	3
<i>fimbriatum</i> Wils.	1
mf. <i>molluscoides</i> (Card.) Roiv.	2
mf. <i>normale</i> Roiv.	2
mf. <i>robustum</i> (Braithw.) Roiv.	2
mf. <i>spectabile</i> (Russ.) Roiv.	2
mf. <i>validius</i> (Card.) Roiv.	2
<i>magellanicum</i> Brid.	11
mf. <i>congestum</i> (Schimp.) Roiv.	11
mf. <i>fusco-rubellum</i> (Warnst.) Roiv.	11
mf. <i>pallescens</i> (Warnst.) Roiv.	11
mf. <i>pallidocarneum</i> (Warnst.) Roiv.	11
mf. <i>purpurascens</i> (Warnst.) Roiv.	11

mf. <i>roseum</i> (Warnst.) Roiv.	11
mf. <i>violascens</i> (Warnst.) Roiv.	11
mf. <i>virescens</i> (Warnst.) Roiv.	11
<i>personatum</i> Roiv.	5
<i>serratum</i> Aust.	7
<i>subfalcatum</i> Roiv.	4
<i>subserratum</i> Roiv.	7
<i>Torreyanum</i> Sulliv.	3
<i>undulatum</i> Warnst.	9

SUOMENKIELINEN SELOSTUS.

TUTKIMUKSIA TULIMAAN LEHTISAMMALISTA.

1. SPHAGNACEAE-DICRANACEAE.

Tekijä on edelläolevassa käsitellyt ensimmäisen osan, heimot *Sphagnaceae*, *Andreaeaceae*, *Fissidentaceae*, *Ditrichaceae*, *Seligeriaceae* ja *Dicranaceae*, siitä lehtisammalaineistosta, jonka hän Suomen Maantieteellisen Seuran retkikunnan kasvitieteilijänä vv. 1928–1929 keräsi Tulimaasta. Tekijällä on ollut onni olla yhteistyössä ameriikkalaisen lehtisammalten erikoistuntijan, Mr EDWIN B. BARTRAMIN kanssa, joka on kuvannut useat matkalla löydettyistä tieteelle uusista lajeista. Hänen kuvaamiaan ovat edellämainittujen heimojen uusista lajeista seuraavat: *Andreaea latinervis*, *Ditrichum Roivainenii*, *Campylopus hamatus*, *Oncophorus luteo-virens* ja *Chorisodontium luridum*. Tekijä ROIVAINEN puolestaan on selvittänyt seuraavat tieteelle uudet sammat: *Sphagnum subfalcatulum*, *Sph. personatum*, *Sph. subserratum*, *Sph. dissimile*, *Sph. dusenioides*, *Pseudodistichium fuegianum* ja *Chorisodontium sphagneticolum*. Näiden lisäksi tekijä kuvaa seuraavat uudet perinnölliset muodot (forma, f.) ja kasvupaikkamuodot (modificatio, mf.): *Chorisodontium dieranelatum* mf. *alpinum*, *Ch. aciphyllum* mf. *erigens*, *Ch. leucopterum* mf. *falcatum*, *Dicranoloma Harioti* f. *laxum* mf. *crispatulum*, mf. *falcatum*, mf. *subfalcatum* ja mf. *nigrescens* sekä f. *patens*, *D. imponens* mf. *condensatum*, *D. robustum* mf. *orthophyllum*, *Dicranoweisia antarctica* f. *breviseta* ja f. *falcatula*, *Distichium capillaceum* f. *elongatum* ja f. *subquadratum*, *Ditrichum Hookeri* mf. *falcatum* ja mf. *orthophyllum*, *Holodontium inerme* mf. *orthophyllum*, *Sphagnum falcatulum* mf. *inundatum* ja mf. *simplex*.

Teoksessa esitetty käsitys hyvin useiden pienempien sammalmuotojen systemaattisesta arvosta on erilainen kuin monien bryologien, jotka ovat Tulimaan sammalkasvistoa tutkineet. Luonnossa paikan päällä suorittamiensa tutkimusten perusteella tekijä on tullut siihen tulokseen, että lukuisat muunnoksiksi (variatio, var.) selitetyt näytteet ovat ainoastaan kasvupaikkamuotoja.

Sitäpaitsi julkaisussa täydennetään ja eräissä tapauksissa oikaistaan tietoja lukuisista tähän saakka vaillinaisesti tunnetuista lajeista sekä tehdään joukko nimistöllisiä uudistuksia. Monet ovat niinkään sellaisetkin tapaukset, joissa tekijän käsityksen mukaan sama laji tai sen kasvupaikkamuodot ovat

aikaisemmin selitetyt eri lajeiksi. Eniten tällaisia synonyymisiä lajeja on todettu *Andreaea alpinasta*, nimittäin 7 (kts. siv. 15).

Myöskin lehtisammalten levinneisyydestä ja paikallisesta yleisyydestä sekä kasvupaikkojen laadusta teoksessa esitetyt tutkimukset antavat huomattavasti lisää siihen, mitä tähän saakka on tunnettu. Tulimaaalle uusia lajeja ovat edellämainittujen tieteelle uusien sammallajien lisäksi esim. *Pseudodistichium austrogeorgicum* (tähän saakka tunnettu Etelä-Georgiasta ja Falklannista), *Skottsbergia paradoxa* (tunnettu Etelä-Georgiasta), *Campylopus Guaitecae* (Länsi-Patagonia) ja *Chorisodontium macropus* (Keski-Chilen etelä-osa).

Tähän saakka vain muutaman kerran löydettyjä lajeja on tekijä löytänyt uusista paikoista sekä todennut useat niistä verraten laajalle levinneiksi. Sellaisia lajeja ovat esim. seuraavat: *Acroschisma Wilsonii*, *Andreaea leiophylla*, *Neuroloma fuegianum*, *Ditrichum Hallei*, *D. stenostomum*, *Anisothecium Paludella*, *Dicranoweisia breviseta*, *Holodontium inerme* ja *Platyneuron laticostatum*.